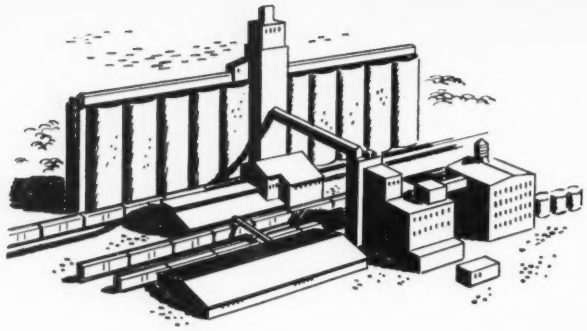
THE Soybean Digest

Chester B. Biddle, Indiana's New Director (See page 39).

Official Publication

AMERICAN SOYBEAN ASSOCIATION

VOLUME 10 • NUMBER 4 FEBRUARY • 1950



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THE Soybean Digest

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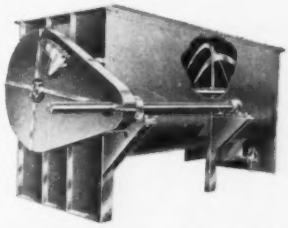

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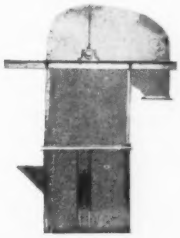

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EDITOR'S DESK

IT WILL MEAN BIGGER SOYBEAN MARKET

President Truman's signature on HR 2023, the bill repealing federal taxes and restrictions on the manufacture and sale of yellow margarine, is expected about the time you receive this issue. This repeal, after many years of effort, is a major victory for the soybean industry. It is the start of a campaign of legislative change which should eventually result in the free sale of this product of American soybeans to the housewives of America, unrestricted by federal and state laws. However, there are still many states with anti-margarine laws on their books. Until those state laws are changed our job is not done.

Significant of the trend in thinking was the recent announcement of Governor Dewey of New York that he "has never favored the ban on the sale of yellow margarine in New York." A complete reversal of his announced policy of 2 years ago when he was running for the presidency, it reflects the change in thinking which has come about through the repeal of the federal laws. There are some 16 states banning yellow margarine or levying state taxes—so there is plenty of work to do yet. The recent announcement by the National Soybean Processors Association that they favored the repeal of federal and state restrictions also indicates the trend. Their assistance in repealing the state restrictions should prove very helpful.

It is impossible to say just what will happen to margarine consumption following release of the federal restrictions on next July 1. There are many factors to be considered. But a doubling of the margarine consumption is within the realm of possibilities. Even then the per capita consumption of table spreads—both margarine and butter—would not equal the prewar figure. Certainly many families where limited incomes are a factor will increase their consumption materially. And not at the expense of butter sales, either.

The soybean industry is in a very strategic spot on margarine sales. Any sales increases will be reflected in soybean oil usage, for the increases will come at a time when cotton, peanut and corn acreages are being reduced. As cottonseed oil supplies—the major oil used in margarine—become smaller the soybean oil usage must of necessity increase. It is reasonable to expect that the major portion of any margarine increases will mean similar increases in soybean oil consumption. We are in the unusual position of increasing our production at a time when other oilseed crop acreages are being reduced. We must not forget that fact. *Federal and state repeal will mean more to soybeans than any other crop.*

WE CAN AVOID CROP CONTROLS IN 1951

Announcement by Secretary Brannan that there will be no acreage controls on 1950 crop soybeans came as welcome news to most of the industry. Growers and processors, as well as handlers, seem largely agreed that Brannan's decision was the wise one. Soybeans have never yet been in surplus, hence we have no way of knowing just how many bushels can be utilized to advantage.

It now becomes the responsibility of all segments of the industry, however, to see that plantings of soybeans do not go hog-wild in 1950. Some increases are to be expected. They should be held within reason. If high proportions of the acreage removed from cotton and corn are planted to soybeans this year, rather than to some of the soil-building crops and the pasture crops, we will find ourselves faced with the necessity of acreage controls in 1951.

However, if growers of soybeans recognize that we can use only reasonable production, and that wholesale acreage increases will mean rigid controls and disastrous price levels, we can avert the tragedies of other industries. We can take our choice between reasonable plantings, favorable prices and intelligent planning or wholesale plantings, disastrous prices, and rigid governmental controls. *The decision will not be made in Washington*—it will be made by the men who plant soybeans in 1950. If they use good judgment ours will be one of the few industries operating on a free basis. If the cotton planter and the corn farmer jump flat-footed into large soybean acreages we will be in the same mess as all other crops which are in surplus.

THE DECISION IS OURS TO MAKE. LET'S BE INTELLIGENT IN MAKING IT.

A BIG POTENTIAL FIELD FOR OIL MEAL

A major field of development in furthering the markets for soybean oil meal and soy protein during the coming decade may well be that of industrial usage.

Significant are the figures recently released by the National Soybean Processors Association showing the consumption of meal and flour for the 1948-49 crop year as compared with the two previous years. In 1946-47 only 1.6 percent of our total production of meal was used by industry. Two years later it had practically doubled—to 3.1 percent. It indicates a very significant trend in a period when production has also increased.

During the same period the usage of soy flour in industry increased from 6.3 percent in 1946-47 to 26.2 percent. This indicates a trend away from edible usage of flour—or it indicates heavy increases in industry when edible consumption is not increasing so rapidly. Total tonnage figures were not released.

The soybean industry must organize itself to do a promotional job—to do sales and technical assistance work to those industrial fields that are potential users. It is with that in mind that ASA is asking soybean processors to join in an industry-wide program of promotion and sales effort.

OILSEED INDUSTRIES CAN JOIN HANDS

Growers of soybeans, of cottonseed, corn, peanuts—all oilseed crops—have a definite stake in the new market for margarine which has been opened up by legislative action. Significant to our industry is the suggestion recently made, and adopted in resolution form by the National Cotton Council at its annual meeting in Memphis, that "the manufacturers of margarine, and the producers and processors of domestic margarine ingredients other than cottonseed oil, be invited to join the council in a cooperative sales campaign to maintain and increase the present level of margarine consumption in the U. S."

Producers of soybeans, together with the processors and the refiners, must expect to bear a proportionate share of the cost of any campaign. Which points to the further necessity of an adequate finance campaign for the soybean industry. We do not yet have such a program. It must be developed rapidly.

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The Model G operates on an average of two to three *quarts* of fuel per hour. Engine in the rear adds weight to the rear wheels for traction — frees the front end for full vision of planters and cultivators. The rear-engine G is not only an ideal tractor for planting and cultivating soybeans . . . it is a handy helper for *all* field crops. You can add high-pay sideline crops such as vegetables, berries, melons, row-cultivated seeds and legumes. A special creeper gear of 3/4 m.p.h. makes easy work of cultivating inch-high seedlings.

Multiple-row crops can prove to be acres of gold in 1950. Take a look at their possibilities from the front view seat of the Model G tractor.

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American Soybean Association leaders conferred with U. S. Department of Agriculture officials early in January concerning the 1950 soybean program. Left to right: Jake Hartz, Jr., ASA vice president, Stuttgart, Ark.; W. B. Crawley, Production and Marketing Administration; David G. Wing, ASA trade and use promotion committee, Mechanicsburg, Ohio; Geo. M. Strayer, ASA secretary-treasurer, Hudson, Iowa; Ersel Walley, ASA trade and use promotion committee, Fort Wayne, Ind.; John W. Evans, ASA president, Montevideo, Minn.; and Charles Brannan, secretary of agriculture. ASA position that there should be no controls in 1950 was adopted by Brannan. **(See announcement on page 33.)**

ACTIVITIES OF YOUR ASSOCIATION

MORE PROGRAM PACKERS

Three additional processors began participating in the American Soybean Association's selling and educational program during the month of January.

The total number of processors now backing the Association program is 19. They are joining producers in putting up cash to expand the Association's activities to an effective scale.

Processor firms that signed contracts during January were:

Alhambra Grain & Feed Co., Alhambra, Ill.

Huegely Elevator Co., Nashville, Ill.

Ohio Valley Soybean Cooperative, Henderson, Ky.

Participating processors are contributing 50c per 1,000 bushels on their monthly crush. This compares with 20c per 100 bushels on their crop contributed by producers.

COTTON COUNCIL MEETING

John W. Evans, Association president, Montevideo, Minn., represented the Association at the National Cotton Council sessions in Memphis, Tenn., Jan. 23-25. He was accompanied by Mrs. Evans.

The council passed a resolution inviting the producers and processors of other oils used in margarine to join the Council in a cooperative sales campaign to increase margarine sales in the U. S.

It was announced that an immediate campaign would be made to raise the first 1 million dollars for the Oscar Johnston Cotton Foundation. The purposes of the Foundation parallel those of the Council. The Foundation will give those not in the cotton industry but whose livelihood depends largely on cotton an opportunity to assist in the promotion of cotton.

The Council itself has a budget of 1.3 million dollars for 1950.

Soybean and cotton industry and margarine men will explore mutual problems at a meeting in Chicago Mar. 8.

Represented will be research men of margarine manufacturers and oil refiners and the cotton and soybean industries.

Problems to be explored will be oil usage in margarine, product storage and the percentage of different oils going into margarine.

This will be a chance for soybean men to learn first hand the strong and weak points of soybean oil as a food oil.

PRICE FOR DELTA BEANS

"Why do soybeans sell for less in the Delta area of Missouri-Arkansas-Tennessee than they do in Illinois?

"That is the question I am asked when I talk soybeans for any length of time in this part of the country," Paul C. Hughes, field service director for the American Soybean Association said, in a talk before teachers of veterans-on-the-farm program at Bay, Ark., Feb. 9.

One reason for lower prices being paid for beans in the Delta area, Hughes said, is the fact that the varieties being grown there are of lower oil content than those grown in the Midwest. Another is that handlers find it necessary to charge a larger margin than the elevator operators further north. This is because they depend on soybeans alone to keep their elevators going while northern elevator men also handle corn, wheat and oats.

"But the main reasons for the lower soybean prices in the Missouri-Arkansas-Tennessee delta area are quality and methods of marketing. Dirty beans coming out of the Delta not only lower the price—they also lower the demand for soybeans in the area.

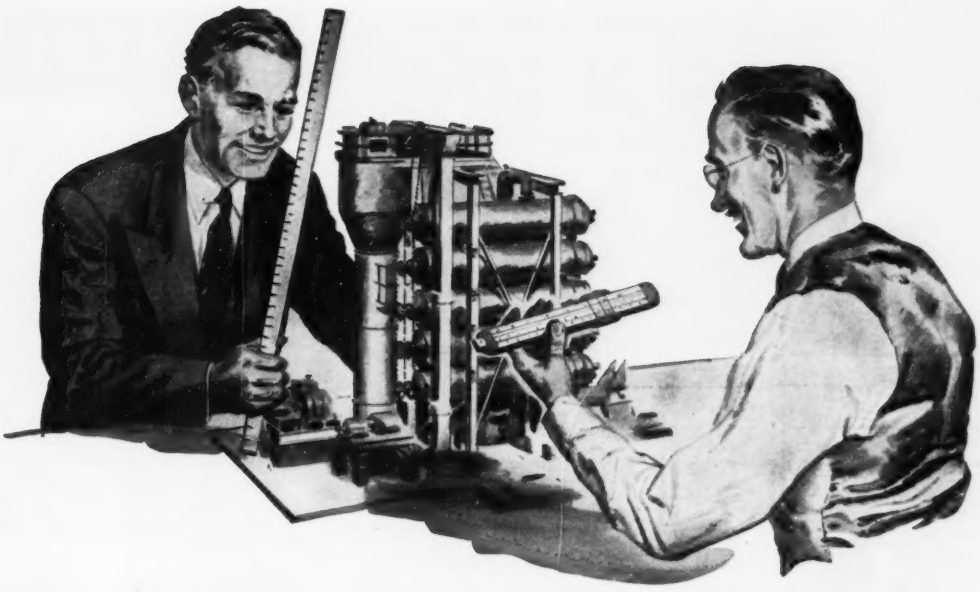
"This past fall the export market for soybeans made the best market this territory ever had for soybeans. But the trash in the soybeans is getting yells from the processors in Europe. The trash problem is so bad our Association, in hopes of keeping that European market, is working with the government to set up a new standard for export soybeans. That means before soybeans can be sold for export they must be clean. The producer will have to pay the cost of cleaning. And as soybeans are bought on a No. 2 basis, producers will also be paid a price low enough to make up for the loss in weight during cleaning.

"Then there is the difference in marketing soybeans between here and Illinois. In Illinois the elevator has a large amount of storage and the farmers also have storage of their own.

"Illinois farmers were holding one-fourth of their crop Jan. 1, while Arkansas farmers were holding one-eleventh of their crop and Missouri farmers one-ninth.

"Storage here is a problem and with the increase in acreage will be a bigger problem. It can only be solved by more storage being built."

The program was put on by Green County teachers. Subjects discussed were varieties, cultural practices and marketing of soybeans. The Allis-Chalmers color film, "Soybean Story," was shown.



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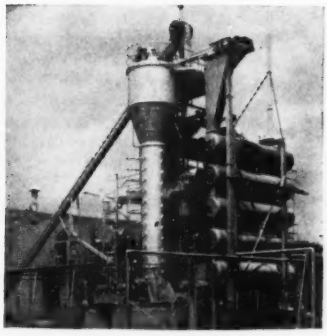

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HAWKEYES EXCEED HOPES

Hawkeye soybeans exceeded expectations as to performance in Iowa in 1949, even the expectations of the Iowa Agricultural Experiment Station men who developed the variety.

Hawkeye showed up better than expected on farms and in yield tests. In all tests Hawkeye averaged 31.9 bushels per acre compared to 31.4 bushels per acre for Lincoln. C. R. Weber, agronomist at Iowa State College and instrumental in the development of Hawkeye, says that in previous years, Lincoln slightly outvielded Hawkeye.

GROWERS

Weber estimates that Hawkeye acreage will be increased another 15 to 30 percent in 1950, possibly up to 40 percent.

Hawkeye is recommended to replace all of the acreage planted to Richland. "Anybody growing Richland can do better with Hawkeye," Weber says. On the average, it will outyield Richland by 5 bushels or more per acre and has more oil. Hawkeye matures the same as Richland, grows about 4 inches higher, and stands up as well. Pods set higher off the ground so there is less combine loss with Hawkeye.

Hawkeye is recommended for the northern one-half of Iowa, northern Illinois, Indiana and Ohio, as well as for northern Nebraska and southern Wisconsin.

LIVESTOCK TAKE POTASH

Wisconsin livestock farms are losing potash at a more rapid rate than are the farms in the corn, soybean and grain-growing states where most of the residues of these crops go back on the land, says C. J. Chapman of the soils department, University of Wisconsin, Madison.

According to Chapman: "Most of the potash taken up by a crop of grain is in the straw, and where combined, the straw is usually left on the field to be plowed under. The same is true for soybeans.

"Where corn is husked in the field, the cornstalks are left on the land, and when plowed under, return potash and organic matter to the soil. However, where crops such as alfalfa and clover and corn are harvested and fed to our livestock, there may be . . . a considerable loss of potash in the handling of animal

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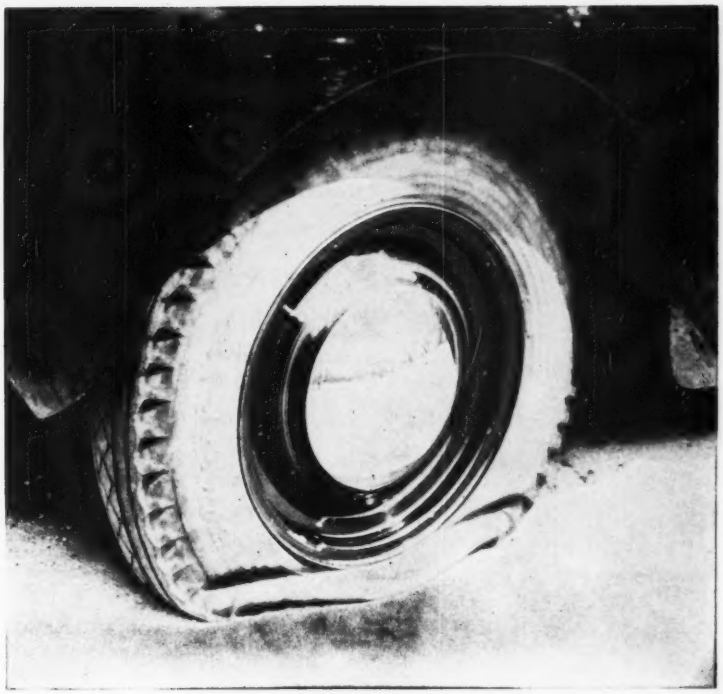

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manures. Authorities tell us that on the average farm not more than 45 percent of the potash contained in crops fed to livestock actually finds its way back to our fields in the manure."

TESTS AT VALLEY FARMS

Cypress No. 1 turned out the best yield in the 1949 Valley Farms variety test at Wrights, Ill., according to Robert W. Weitzer, farm manager.

Eight varieties were tested in the plots.

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Cypress No. 1, a selection from Korean, yielded over 49 bushels per acre as compared with 46 bushels for Adams, the next highest yielder. Other yields: S-100 44; Wabash 43; Hawkeye 41; Lincoln 37; Monroe 36 and Korean 31.

Rating of the varieties according to their resistance to lodging: Korean, Wabash, Hawkeye, Cypress No. 1; Lincoln, S-100 and Adams. Rating on shattering: Wabash, Cypress No. 1, Adams, Hawkeye, S-100, Lincoln, Monroe and Korean.

CAPITAL IN MINNESOTA

The Canadian soybean variety, Capital, is giving a very good account of itself in northern Minnesota, according to reports of producers who grew the variety in 1949.

Last year was the first year of commercial production of Capital.

Truman Teske, Truman, Minn., planted 12 bushels of Capital seeds. He writes, "They yielded 33.1 bushels per acre. In my 8 years of raising soybeans I have never raised any I liked as well, and I have tried six different kinds. They have a very vigorous growth and they took the terrific wind we had on Oct. 10 without shelling or dropping pods."

Reports *Leo Kavanagh, De Graff, Minn.*: "The Capitals yielded 30 bushels per acre and my Ottawa Mandarins made 22 bushels. They stand up nice and are easy to handle with a combine and never shattered. One bushel per acre is enough seeding."

This shows what Capital soybeans will do under ideal conditions—on Minnesota River bottom land near Shakopee, Minn.

Larry Weidt, Archer-Daniels-Midland Co., and Robert E. Peck, River Canard, Manitoba in a field of Capitals on Minnesota River bottom land and on the Weidt farm.

John A. Nelson, Maynard, Minn., names these four points in favor of Capital:

1—They are 6-7 inches taller than Ottawa Mandarin.

2—They show very good yield on alkaline land—22 bushels on his poorest crop land in spite of bad drouth.

3—They do not shatter and bean pods are about 4 to 5 inches from the ground.

4—The beans are small and do not split or break as do larger beans. They also require less seed per acre.

John W. Evans, Montevideo, Minn., reports he is well pleased with the yield and general performance of Capital.

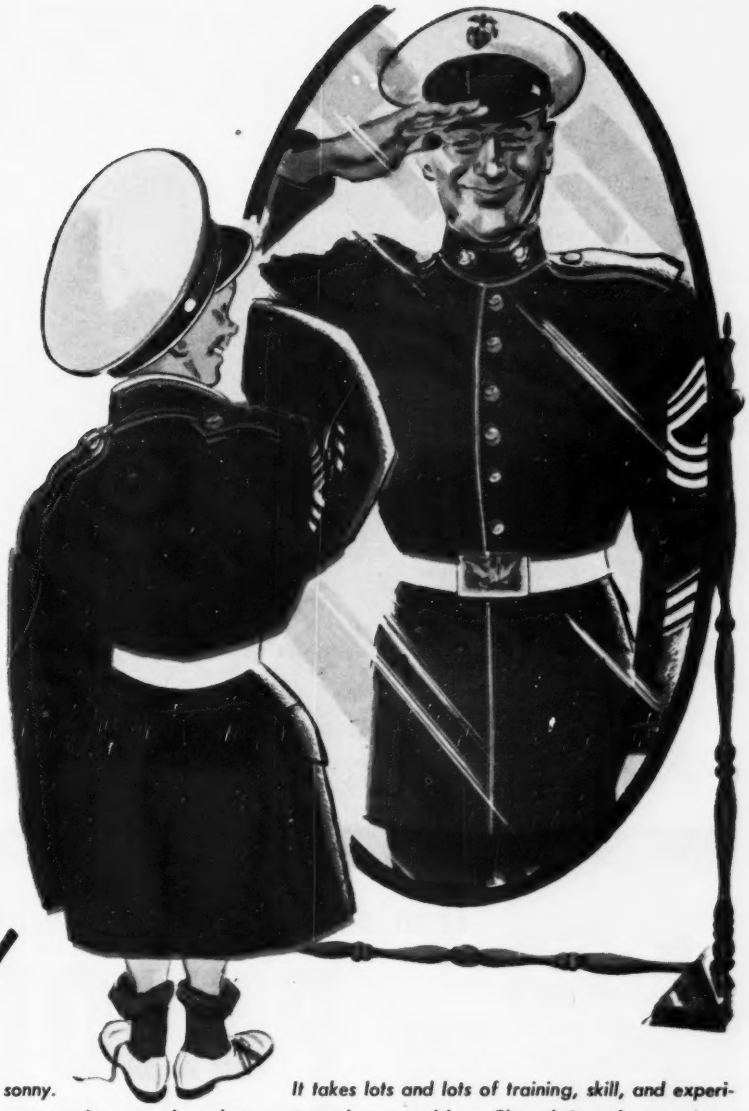
The variety was developed by the Central Experimental Farm at Ottawa.

TO GROW ADAMS IN ILL.

The Adams variety of soybean will be grown on Illinois farms in 1950 for the first time.

This announcement came from J. C. Hackleman, crops specialist in the Illinois College of Agriculture.

Only 2,000 bushels of Adams are available and they will be used to increase seed supplies. Hackelman says practically all of the Adams bean seed is now committed.



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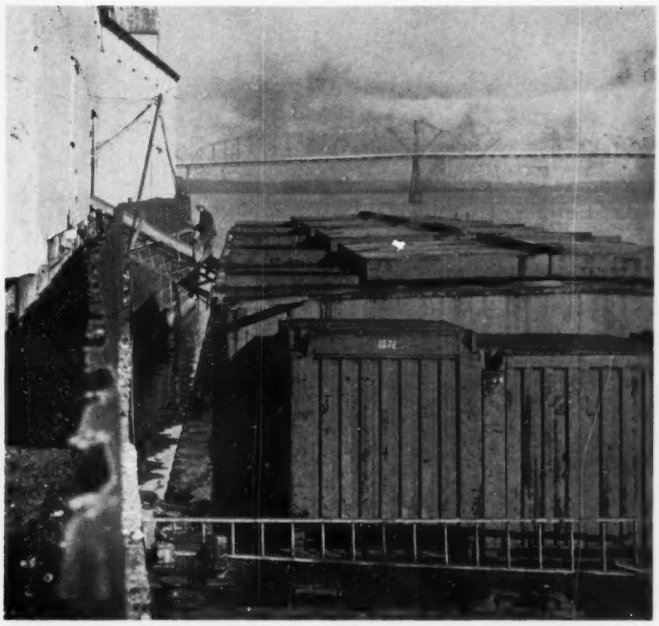


You see a barge tied up at the warehouse of Mississippi Valley Grain & Feed Co., Inc., on the Mississippi River at Davenport, Iowa. It is being loaded with "Port City" soybean oil meal to be shipped all the way by water to Tampa, Fla. Meal is produced by sister firm, Muscatine Processing Corp.

SOYBEAN MEAL BY BARGE TO FLORIDA

The regular shipment of soybean oil meal by water from Muscatine, Iowa, to Tampa, Fla., was begun last fall. It is part of an operation by three affiliated Muscatine firms to increase the profits of livestock feeding in Florida and at the same time to open wider markets for Midwest soybeans and grain.

The meal is "Port City," manufactured by Muscatine Processing Corp. It is loaded on barge at the warehouse of the sister company, Mississippi Valley Grain & Feed Co., and towed downriver to New Orleans. There it is transferred to another barge and taken across the Gulf to Tampa, and unloaded at the new terminal elevator there.

The barges as well as the elevator are owned and operated by the two firms and a third affiliated company, Grain Processing Corp.

The three firms built the terminal elevator, the first in Florida, and put it in operation last fall.

They were shipping grain to Florida from Iowa before the war. They saw the value, from the standpoint of economy, of water shipment from Mississippi River ports. They also saw that Florida's growing livestock industry was greatly hampered by lack of elevator facilities. These were needed to give the state's feed manufacturers a steady source of feed grains and to place its farmers on a par with the farmers in other sections.

The barge load of soybean oil meal was the first commodity to be shipped to the Tampa elevator when it was opened last fall. The shipment was equal to 11 30-ton railway carloads. A second barge being loaded is pictured above.

The Tampa elevator is expected to give Florida livestock production a real boost and at the same time to stimulate the growth of Muscatine as a market for grain.

Says G. A. Kent, vice president of Muscatine Processing Corp., "It is our hope that the feeding of cattle, livestock and poultry on thousands of farms and ranches served by feed manufacturers in the Tampa area can become more economical."

The firm operates a solvent extraction plant at Muscatine and has storage for 175,000 bushels of soybeans.

TRI-STATE CONFERENCE

The tri-state soybean processors' conference for Missouri, Iowa and Minnesota will be held at the University of Missouri, Columbia, Mar. 1 and 2, Carl V. Feaster of the Missouri Agricultural Experiment Station has announced.

Meeting begins with a 6:30 p. m. banquet Mar. 1 at the Daniel Boone Hotel, Columbia.

A block of rooms for those who wish to attend the conference has been reserved at the Daniel Boone Hotel, according to Mr. Feaster. Requests for reservations should be made directly with the hotel, he says.

The conference on a tri-state basis was inaugurated in 1949 and the first meeting was at Ames, Iowa.

— s b d —

ON ASIATIC MISSION

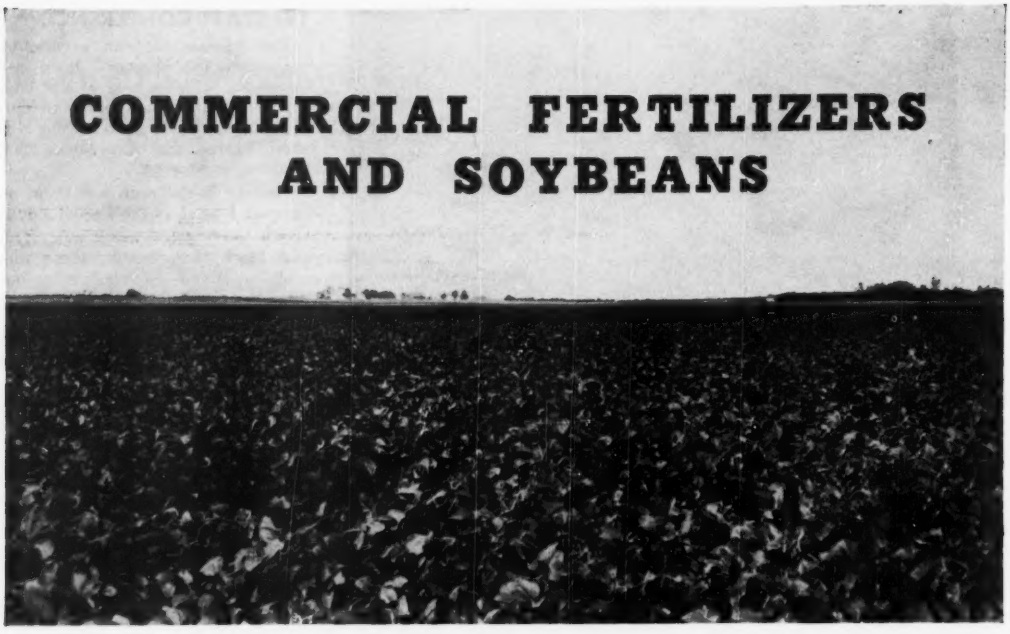
Stanley Andrews, director of the Office of Foreign Agricultural Relations, U. S. Department of Agriculture, left early in January to attend meetings of the International Wheat Council and International Rice Council in London and Rangoon; and to visit points in Asia for the U. S. Army in connection with the Japanese food and agriculture program.

G. H. Banks, research director, O. H. Acom Farms, Wardell, Mo., is acting as Andrews' aide on the trip. Banks previously spent 2 years in Korea as a rice expert for the U. S. government.

Tentative itinerary of the two men calls for visits to Calcutta, New Delhi, Karachi, Colombo, Singapore, Batavia, Manila, Hongkong and Tokyo.

STANLEY ANDREWS

COMMERCIAL FERTILIZERS AND SOYBEANS



By A. J. OHLROGGE[1]

A 35-, or more, bushel-per-acre soybean crop represents the accumulated effects of scores of factors operating in near-perfect balance to produce that crop. If any one of these many variants is out of balance, like an instrument out of tune in an orchestra, the result cannot be successful.

In this paper only a few of the plant nutrients will be discussed, but at all times it must be realized that all of the factors of plant growth must be in tune. These include the climatic factors—light, temperature, length of day, water; the soil factors—temperature, aeration, acidity, water and plant nutrient supplies; the cultural practices of seedbed preparation, planting and cultivation, and finally those factors of variety, diseases and insect infestation. All of these are interrelated in their effect in greater or lesser degrees.

The soybean is unique among the common field crops. It is surprisingly tolerant to low levels of fertility, yet is extremely fussy in its requirements for high yields. On some of the poorest soils, 8 to 12 bushels of beans are produced where corn, wheat, or oats would hardly return the seed planted. Yet on some soils, where corn and wheat will produce high yields through fertilizations, soybeans will yield only 20 to 25 bushels per acre. The light colored silt loam soils are a good example. In an experiment at Lafayette during the first 6 years of the test, crop yields through fertilization were increased as follows: corn, 90 percent; wheat, 165 percent; clover-alfalfa hay, 65 percent, and soybeans, 9 percent.

Fertilizer practices might well be divided for this discussion into two categories; fertilization at low rates or "starter fertilization" and fertilization at high rates.

Starter Fertilization

A 100- or 200-pound application of single strength fertilizer is in the starter category. Only a small percentage of the plant requirement is supplied by the fertilizer. On soils seriously deficient in a nutrient, the crop needs to be fed to maturity; consequently, much higher rates are necessary for maximum yields.

For starter fertilizers to be effective, it is essential that the fertilizer be placed near the seed so that it will be immediately available to the young plant. Soybeans are very sensitive to soluble salt injury; therefore drilling the fertilizer with the seed is not recommended. Applying the fertilizer with the attachment on the corn planter places the fertilizer near the seed but not in contact with it. Although the fertilizer attachments on most corn planters are designed to place the band of fertilizer near seed level, with an inch or more of fertilizer free soil between the seed and the band, in practice this is seldom accomplished. More often, most of the fertilizer is placed above seed level and much of it near the surface immediately above the seed.

Table 1 — Effect of Method of Planting and Fertilizer Rate on the Emergence of Soybeans, Lafayette, Ind.

Method of Planting	Fertilizer Treatment	Percent Stand Days after planting		
		6	12	18
Grain Drill	Unfertilized	45	62	100
Grain Drill	100 lbs. 0-20-20	30	51	91
Grain Drill	200 lbs. 0-20-20	16	37	75
Corn Planter	Unfertilized	80	100	
Corn Planter	100 lbs. 0-20-20	60	86	
Corn Planter	200 lbs. 0-20-20	52	82	

Table 1 shows the effect of fertilization on stands of soybeans. On this silty clay loam, high in organic matter, fertilizer drilled with the seed seriously delayed emergence, and had not a 1.02 inch rain occurred 10 days after planting, the bean stands with the grain drill would have been much lower. Fertilizer applications with the corn planter delayed emergence, but not seriously. On lighter textured soils, i.e. loams and sandy loams, the soluble salt injury would be intensified.

In fertilizer tests at Purdue, 100- to 200-pound applications generally give 1- to 3-bushel-per-acre increases in yield. This was especially true

[1] Assistant Professor in Soil Fertility, Purdue University, Lafayette, Ind. It is a pleasure to acknowledge the work of Mr. R. R. Mulvey, Mr. G. H. Enfield, and former graduate students Dr. M. T. Vittum and Dr. J. E. Steckel some of whose data is reported in this paper.

on soils tending to be low in available potash. These increases, although small, are profitable and, in addition to increasing the yield, often bring about 1 to 6 days earlier maturity of the beans. This is a real advantage when winter wheat, the natural crop to follow soys, is used in the rotation.

In crop rotations in Indiana, the bulk of the fertilizer is applied on the small grain crop which is seeded to the grass legume mixture. Approximately 400 pounds of fertilizer is recommended. Because of the inconvenience of applying this quantity of fertilizer on the wheat, farmers find another advantage in bean fertilization, because it permits adequate rotation fertilization without inconveniently high rates on the small grain crop.

High Rate Fertilization

If deficiency symptoms appear on the soybeans—and potash symptoms are more prevalent than the other major nutrients—starter quantities of fertilizer are not adequate to produce a 30-bushel or more yield. In most cases more than the total nutrient content of the plant at maturity must be supplied, since the plant is not capable of recovering all of the fertilizer applied. These high quantities of fertilizer cannot be supplied to the crop with the present attachments on the corn planter because of salt injury.

Broadcasting the fertilizer on the soil before plowing or drilling it deep as a separate operation before planting, are satisfactory procedures. These methods are being used to bring the plant nutrient level in the deficient soil into tune with the other factors of crop production.

● *From an address before the annual convention of the American Soybean Association in Minneapolis, Minn.*

A. J. OHLROGGE

Table 4—The Place in the Rotation to Apply Fertilizer, Crosby Silt Loam, Lafayette, 1942-48

Treat. No.	Distribution of fertilizer on crops[1]	Crop Yields[2]			
		Corn	Soybeans	Wheat	Clover Hay
1	None	46.9	21.0	11.0	2090
3	1/3 soybean, 2/3 clover	63.3	23.6	18.7	3080
5	1/6 corn, 1/6 soybeans 1/3 wheat, 1/3 clover	73.1	23.5	20.3	3000
7	1/3 corn, 2/3 wheat	75.0	23.0	19.9	3330
8[3]	corn, wheat + nitrogen	90.8	23.6	27.0	2910

[1] 1200 lbs. 0-12-12 per rotation.
[2] 84 lbs. nitrogen on corn and 24 lbs. on wheat in addition to 0-12-12 fertilization.
[3] Bushels and pounds per acre for grain and hay crops respectively.

Table 2—Response of Potash Deficient Soybeans to Plowed Under Fertilizer

County	Fertilizer Analysis	Yield Unfertilized Bu./A	Increase in Bu./A for fertilizer at 500 lbs. per acre	Increase in Bu./A for fertilizer at 1000 lbs. per acre
Elkhart	0-8-24	9.9	12.9	17.8
Jasper	0-12-12	18.0	13.4	15.4

Table 2 shows the increase in yield obtained on two potash deficient fields in northern Indiana. The increases in yields obtained are striking evidence of the effect of fertilizer applications. The soil at these locations are sandy loams and sands. The fertilizer was applied broadcast before plowing.

Table 3—Effect of Fertilization on the Yield and Maturity of Potash-Deficient Soybeans, Crosby Silt Loam, Lafayette

Fertilizer Applied	Percent Moisture Oct. 3	Yield Bu./A
None	58.3	20.2
400 lbs. 0-10-20 preceding corn crop	31.9	25.8
400 lbs. 0-10-20 on soybeans	12.3	32.9

In Table 3 similar results are shown for a light colored, poorly drained silt loam at Lafayette. Data on maturity of the beans is also given. Correcting the potash deficiency resulted in the beans maturing 3 weeks earlier. As would be anticipated, much higher quality beans were harvested on the fertilized plots.

Another experiment only 6 miles from this location and on the same soil type, but not as adequately tile drained, gives quite a different picture. The soybeans growing on the unfertilized plots also show severe potash deficiency symptoms. The average crop yields for the rotation of corn, soybeans, wheat, and clover hay are given in Table 4. The experiment was designed to determine where in the rotation the fertilizer should be applied. Although all other crop yields have been quite satisfactorily increased, soybean yields have been little influenced through fertilization, even though the deficiency symptoms have been corrected. Some factor of production is certainly out of tune on this soil. The exact factor is not known, but it is believed to be soil structure. Poor performance of beans on light colored silt loam soils is fairly general, but not universal. Where these soils are built up, through good rotation with legume-grass sod crops, return of residues and manures, and adequate fertilization, they will produce high yielding soybean crops. Additional research in soil fertility is needed to determine precisely the limiting factors on these soils.

From the above examples and other available data it can be generalized that the lighter textured soils and soils high in organic matter are the best bets for direct fertilization at the higher rates. Silt loam and heavy soils which are naturally poorly drained and are at a medium or low level of fertility are the poorest risks for direct fertilization at high rates. On all soils, fertilization of the rotation by applying the bulk of the fertilizer on the small grain and starter quantities on the other crops is recommended as the long-time practice. Temporarily supplementing this practice where necessary by direct fertilization of other crops at high rates is recommended until a high level of productivity is achieved on the responsive soils.

Nitrogen on Soybeans

More and more reports are received indicating profitable responses to commercial fertilizer nitrogen on soybeans. However, limited tests in Indiana have given little if any increase in yields to nitrogen applications. If it is found that profitable increases in yields can be obtained by nitrogen fertilization, nitrogen certainly should be used; however, it well behooves the researcher in the meantime to seek out the cause for this legume to respond to supplemental nitrogen supplies.

Minor Elements

Of the minor or trace elements, soybeans appear to be particularly sensitive to manganese and iron. Manganese deficiency symptoms are

prevalent in the soybean fields of the Kankakee River basin and in northeastern Indiana. Where soybeans show deficiencies, wheat and oats will also show the deficiency as they appear as sensitive as soybeans to low levels of available manganese.

The deficiency symptom is characterized by the leaves turning light green with the veins remaining dark green. In the more advanced stages, interveinal tissues turn yellow and finally die. The veins tend to remain green even after small areas of interveinal tissue have died. Before necrosis develops, deficient leaves will recover when sprayed with manganese solutions.

Low levels of available manganese in soils are associated with a soil pH of above 6.3 on soils that have developed under a high water table. This condition encourages the reduction of the manganese to the soluble form which is consequently leached from the soil. The intensity of the manganese deficiency varies between seasons and within seasons because of the close relationship existing between its availability, microbial activity and the climatic factors.

Deficiencies can be corrected by lowering the pH of the soil, soil applications of manganese, or foliar sprays. All three methods have been used. On soils with pH just above the threshold pH, soil applications of sulfur appear feasible. Manganese sulfate applied in the mixed fertilizer used at planting at the rate of 30 to 60 pounds of the salt per acre is effective. Soil applications must be applied in a band and be repeated each year a manganese-sensitive crop is grown.

Table 5—Response of Soybeans to Soil and Foliar Manganese Applicatons, Maumee Loam, Hayter Farm, 1946

$MnSO_4$ Lbs. per acre	Yield — Bu./A Soil	Spray
0	16.7	15.1
6.5	—	31.0
18	21.2	—
36	29.0	—
72	34.1	—
142	34.8	—

Three to seven pounds of manganese sulfate applied as a foliar spray at the appearance of the first symptoms is also effective. In extreme cases the spray treatment might have to be repeated for maximum yields. Spray grades of the materials in sufficient volume of solution to obtain good plant coverage should be used. Table 5 shows the effectiveness of spray and soil treatments on a farm in northern Indiana. The manganese sulfate was applied at planting near the seed, and the foliar sprays were applied at the appearance of the first symptoms, when the beans were about six inches tall.

Iron deficiency in the early stages is difficult to distinguish from manganese deficiency. In severe cases the entire leaf is bleached almost white, whereas the veins of the manganese-deficient plant remain green. Iron deficiencies are always associated with near neutral and alkaline soils. Foliar sprays and soil applications are effective corrective procedures.

Only a few isolated cases of iron deficiency have been observed in Indiana. Iron deficiencies are more prevalent in the western states.

The use of minor element mixtures for soil applications is in general not recommended. Minor element mixtures may have antagonistic effects; for example, iron applications accentuate manganese deficiencies and vice versa. A sounder basis is to identify the deficiency and then adopt the necessary corrective measures.

The use of adapted rotations, adequately fertilized and the return of all manures and crop residues, plus good management, will be most effective in bringing into perfect harmony the factors essential for maximum soybean yields.

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At left, two agronomists talk shop: C. R. Weber, U. S. Regional Soybean Laboratory, Ames, Iowa; and C. V. Feaster, Missouri Agricultural Experiment Station, Columbia, Mo. In center, part of the group at the soybean conference in Peoria Jan. 16-17. At far left you see Director R. T. Milner of the Northern Regional Research Laboratory, host to the conference. At right, visiting between sessions are O. H. Alderks, manager technical division, Buckeye Cotton Oil Co., Ivorydale, Ohio; and H. A. Abbott, manager soybean division, Funk Bros. Seed Co., Bloomington, Ill.

THE PEORIA CONFERENCE

About 135 soybean processors and others heard industry problems and new developments discussed by qualified experts at the 2-day soybean conference at the Northern Regional Research Laboratory in Peoria Jan. 16-17.

The morning session of the second day was devoted to recent research at the laboratory and covered the soybean oil taste panel, lime as a hardening agent in soybean oil paints and the effect of metals on edible oil quality.

Other papers covered such widely divergent subjects as new varieties, the soybean industry in Europe, hedging problems, methods of processing, quality of soybean oil meal in feed formulation and promotion of soy flour.

Speakers on the program included: J. L. Cartter, director, U. S. Regional Soybean Laboratory; Geo. M. Strayer, secretary-treasurer, American Soybean Association; C. E. Robinson, futures trading analyst, Commodity Exchange Authority.

W. H. Goss, associate director, department of scientific research and technical development, Pillsbury Mills, Inc.; R. C. Holder, director, nutritional department, Central Soya Co., Ind.; R. G. Brierley, vice chairman, executive board, Soya Food Research Council.

A. J. Lewis, chemist industrial oil section, oil and protein division, Northern Regional Research Laboratory; Helen Moser, food technologist, oil and protein division, NRRL; C. D. Evans, in charge, edible oil section, oil and protein division, NRRL; and J. H. Dean, assistant director, cotton branch, Production and Marketing Administration.

A speech by Martin Sorkin, grain branch, Production and Marketing Administration, on "Acreage Allotments for Soybeans and Other Oil Crops," was cancelled. It was announced from the floor that the talk would not be given since no acreage allotment program for soybeans had been set up.

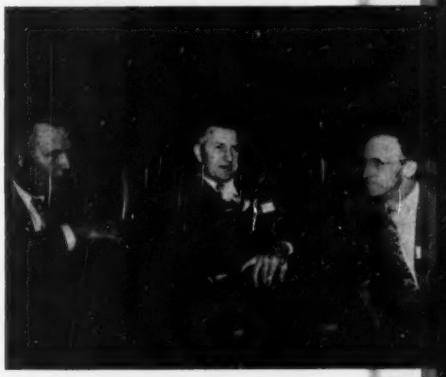
Presiding at the sessions were R. G. Houghtlin, president of the National Soybean Producers Association, Chicago, Ill.; and R. T. Milner, director of the Laboratory.

States represented at the conference included: Illinois, Ohio, Indiana, Minnesota, Pennsylvania, Iowa, Missouri, Mississippi, Wisconsin, Massachusetts, Kansas, Kentucky, Alabama, New York, Georgia, Tennessee, Delaware, Nebraska, Michigan and Washington, D. C.

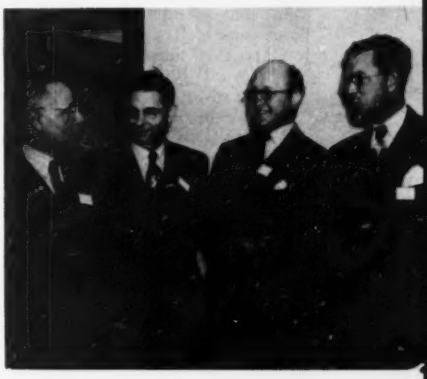
Three of the papers given at the conference are carried in this issue of the Soybean Digest. Others will be published in future issues.

Photos of informal groups at the conference shown on this page were taken by Kent Pellett, managing editor of the Soybean Digest.

Below, Iowans compare notes: Henry B. Levig, manager Farmers Cooperative Elevator, Martelle; C. W. Bolander, manager Cargill, Inc., Cedar Rapids; and C. F. Brookes, director North Iowa Processing Association, Manly.



Below, a Kansas-Nebraska-Missouri foursome. Left to right, E. A. Gumbert, vice president Dannen Mills, Inc., St. Joseph, Mo.; Harry E. Wiysel, secretary-treasurer, Fremont (Nebr.) Cake & Meal Co.; T. W. Lord, president Kansas Soya Products Co., Emporia, Kans.; and A. G. Thomson, Thomson Soya Mill, Hiawatha, Kans.



Problems in the PROMOTION of Soy Flour

An Address before the Peoria, Ill., Soybean Conference

By R. G. BRIERLEY

Ass't vice president Archer-Daniels-Midland Co.

THE PROBLEMS in the promotion of soy flour are the result of the characteristics of the product itself. Soy flour is new. It is almost too good to be true because of its high protein value and cheap price and it is a competitor of other established items in the American diet.

I think the basic promotion problem can best be pointed up by telling you of a business friend who recently came to me with a new product. This new product was a cereal in flake form which had been made up by nutrition and cereal experts to contain a combination of soya and wheat which would give not only the best nutrition, but also excellent taste and eye appeal.

I tried the cereal out at home as did a number of the executives of our firm. Our advertising agency man had a number of people test it for preference against two well known cereals. All gave the same verdict. The product was outstanding. A good look at the nutritional protein assays, gave convincing proof that it was head and shoulders ahead of other cereals on the market and would be a major contribution to the average American's breakfast diet.

Then we came to the question of how to merchandise the product. It looked as if it had every selling point that would make good advertising copy. It was so good nutritionally that the housewife should jump for it. But the final appraisal by our advertising man was this. "Dick, despite all the qualities of this cereal, you will never make a dent in the market with it unless you also have a million dollars in box tops to give away the first year."

Why?—because the American public wants something for nothing. Whether it be politics or food, they want give-aways. They don't want common sense in politics or good nutrition in food. They want the welfare state and box tops that can be turned in on torpedo rings. Let a man tell the average American the type of diet which will build resistance to colds, and he goes unheard, but let the same man advertise some pills for curing the cold after it starts, and he makes a fortune.

And just so in edible soya products. The greatest single selling point for our product is nutrition. Soy flour has more protein quality at less money than any food marketed. We can so process soy flour that it is virtually equal in protein quality to that standard of excellence—milk.

But can we sell it on that basis? No! True enough, the dog food manufacturer will take it for its protein quality. And the poultry man is fast realizing that he can get faster growth gains in broilers with a ration containing high quantity of edible soy grits.

No Selling Point

But the American food manufacturer and, for that matter, the foreign food manufacturer won't buy edible soy on nutrition and protein excellence. The food manufacturer is only interested in soya if it gives some functional advantage in his production, or some cost saving in his plant, or some major quality improvement in his product which will add to the sales appeal—and the sales appeal has nothing to do with how good it is for the consumer.

In my early days with the industry, I was amazed and chagrined to find out that the laws of the land were such that food and drug officials, in judging the case of soy flour as an optional ingredient in white bread, were not bound by any consideration of whether the product was nutritionally desirable in white bread. They were rather to decide on whether at the 3 percent level it performed the function of other farinaceous materials and was in general use by the bakers and was what the consumer would expect as an ingredient in a loaf of white bread. The fact that 6 percent of soy performed a better job of protein improvement than 3 percent in bread was inconsequential alongside the consideration of whether the 6 percent would change the characteristic of the loaf to the point that the consumer would not think it was white bread.

And when the standards are announced it will be illegal to make white bread with more than the prescribed amount of soy flour, even if, in so doing, the bread becomes a more complete food and a better item in the diet.

In Germany last year, I talked again and again to officials of a protein starved nation who recognized the fact that soya was the only salvation and yet bucked the idea because soy was new and unfamiliar. German Food Police raised their heads in horror when it was suggested that anything other than meat could be put in sausage and improve it.

And so I repeat, that the basic problem in promoting soy flour is that its greatest selling point is nutrition and no one seems to give a darn about nutrition in human food. There are outstanding exceptions to this such as nutritionally-minded Dr. Clive McCay at Cornell, who has practically evangelized 6 percent milk and 6 percent soy flour into bread in New York state institutions because it increased tremendously food value of the loaf and at little cost added something new and important to the staff of life. But, unfortunately, he is the exception. The American food manufacturer quite naturally makes products the public will buy and the public buys one product against another for a lot of intangible reasons, none of them relating to nutrition.

This unfortunate fact has had a great effect on the promotion of soy flour. It has forced the soya manufacturer to find other selling points for soy flour and has magnified the

job. Anti-staling effect, color, taste, effect on texture and volume and toasting have been sold to the baker. Increased binding value in comminuted meat products has been sold the meat packers. Other functional values have been played up with the prepared mix manufacturer, the doughnut maker, and the miscellaneous food manufacturers.

Bread Softeners

There is a somewhat analagous situation in the bakery industry today. Though it is a sad commentary on American life, the biggest thing that has hit the baking industry in years is the current controversy on bread softeners. No product has caught on so quickly and been so universally used in a long time—and why? Because bread softeners help make a loaf of bread softer longer so that when the housewife squeezes the bread in the store to determine in her own infinite wisdom whether it is fresh or not, it "honks," that is, it squeezes together like a rubber bulb on a horn.

Is there any food value or nutrition involved? Well, the whole industry has had the greatest mess in its history while the respective interests battle back and forth—with the poor bakers in the middle—to prove whether the products are injurious or just neutral from a nutrition standpoint.

Looking to the brighter side, however, this is probably all to the good. We have had to forget nutrition and concentrate on the functional values to the point that we have undoubtedly hurried the solution to the problems in improving edible soy flour.

At this point I would like to discuss the promotion job that lies ahead of us.

First in the program of promotion should come constant product improvement. The industry is fortunate indeed to have the Northern Regional Research Laboratory working on soy flour product improvement right now through Agricultural Research Administration funds. There is a fine new baking lab here at the Northern Regional Research Laboratory which is all equipped to tackle the job of supplementing the work of the industry and the Soya Food Research Council in improving soy flour quality. Reid Milner has wisely appointed a committee from industry to counsel with his key men here on that project and we expect big things.

The Soya Food Research Council is also sponsoring for the second year a fractionation study on soy flour at the University of Minnesota under the able direction of Dr. William Geddes and this work will be coordinated with the work done here in Peoria.

Previously, much work has been done on product improvement under the sponsorship of the Soya Food Research Council. This work includes a research program at four Illinois state institutions to determine the continued acceptance of bread baked with soy flour. The Council has also sponsored a comprehensive bread baking research program at Kansas State College under the supervision of Dr. E. G. Bayfield, head of the Department of Milling Industry. The Council has had tests run at the Midwest Laboratories at Columbus, Ohio, to determine the effect of 3 percent of soy flour in bread.

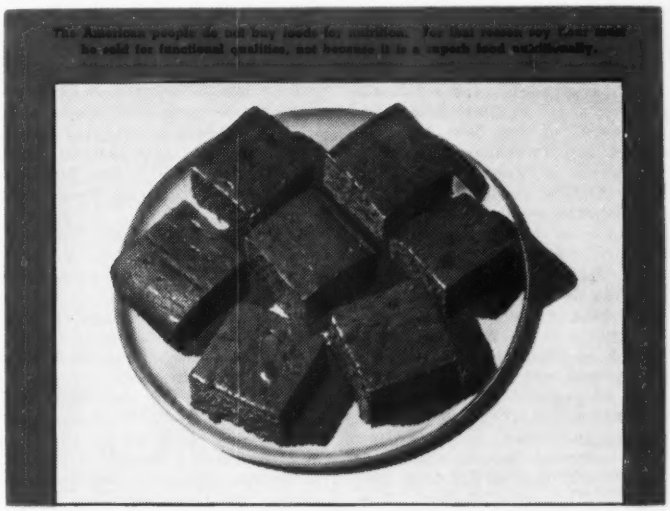
The University of Wisconsin has conducted a study on the utilization of soy flour in sweet goods and yeast raised products other than bread. The Council has sponsored a research program at the University of Minnesota under the direction of Dr. E. C. Mickel of the entomology department to determine the susceptibility of soy flour to insect contamination. The University of Illinois, under the supervision of Dr. F. M. Clark of the department of bacteriology, collaborated with the industry and the National Canners Association on determination of thermophilic content of soy flour.

The William T. Thompson Co. of Los Angeles was commissioned by the Council to do considerable microbiological assay of the amino content of soy flour. The University of Pittsburgh, under the direction of Dr. B. F. Daubert, made a significant contribution with work on stability of soy flour which had been subjected to accelerated oxidation. Hormel Institute has just completed work on soy flour in meat under grant from the Soya Food Research Council.

As I mentioned before, this great laboratory at which we are privileged to meet has also under way a project for improvement of soy flour itself. The search is continuing on for a soy flour of whiter color, blander flavor, and better functional quality in bakery and other food products.

It is not an easy job. The various factors examined seem to fight against each other. Alcohol extraction, for example, has shown considerable promise in improving color and taste. But, so far, the alcohol extracted soy flour examined by the Federal Soft Wheat Laboratory in Wooster, Ohio, and by laboratories in our own industry, has been very inferior in baking quality. Vacuum drying of hexane flakes has made a significant improvement in baking quality, but the flavor and taste are again inferior and unacceptable. There is a man-sized job ahead.

Second in the program should be curbing the over-enthusiasts. I will never forget going home to a mother, whose reputation as a good cook was superb, only to have her serve me muffins that were like lead, and upon complaining find they were made just according to the recipe on a retail package of soy flour that she had purchased. The recipe contained such high percentages of soy flour that the resulting muffins were unacceptable. Dr. Le Clerc and others


The American people do not buy foods for nutrition. For that reason soy flour must
be sold for functional qualities, not because it is a superb food nutritionally.

● *Brierley, who is secretary of the Soya Food Research Council, leaves soon on a special soy foods mission to Germany in company with Kenneth Shuman of the Glidden Co.*

who have insisted on 20 percent and 30 percent soy flour in bread have done us more harm than good. The health food manufacturer who puts soy in every unpalatable food on the shelf and produces soyburgers and meatless meat with soy, puts us back 1 year each month.

Soy does its best job in small quantities in basic foods where it not only adds protein but supplements the other protein in the basic food to make them both better. The sooner we can rid ourselves of the enthusiasts and food faddists and come back to common sense, the easier the promotion job will be.

Third, is the problem of continual education. The history of soy flour is too little known. The nutritional evidence is too narrowly held. The antagonists of soy flour have too open a field for criticism. The people in the soybean industry itself know too little about the product.

How many people realize that soy protein is the cheapest vegetable protein available for human consumption? How many people know that investigators such as Levinson and Keyes have proved with humans that soy protein is the equal of animal protein in blood plasma regeneration, growth, and tissue repair? How many of you are familiar with the unending assays on rats to prove the quality of protein in soy? How many know that since the start of the war 900,000 tons of soy flour have been used in human feeding? How many know that 26 countries have had American soy flour?

I cannot give the whole case, but the facts are there, and it is up to the soybean industry to learn them and spread the gospel and educate the doubters and face up the antagonists with hard facts. One of the members of the soybean industry and a well-known expert, was recently in Frankfurt telling officers of the high command that the major use of soy flour in United States was in Morrell's dog food. It is good selling for Morrell's because it points up the quality of their dog food. The facts are, however, that since 1944, 18 percent of the soy flour used domestically has gone into dog food, while 38 percent has been used in bakery products, 20 percent in meat products, and 11 percent by institutions.

We are starting such an educational job in Germany. In two weeks, Ken Shuman and I, representing the Sova Food Research Council, are spending a month in Germany at the request of the German government to present all the evidence on how soya can be used in the German food economy and help solve the protein problem in Germany. We are starting in Germany because it is there that the need seems the greater and the opportunity the best. There, nutrition has got to mean something to the planners. Here, we are well enough fed now, so there isn't the urgency.

Should Change Name

Fourth in the program and not as unimportant as it may sound, is to change the name of soy flour to soy protein or soy powder or something that gets away from the "flour" terminology. Soy flour bears no resemblence to wheat flour. It has no gluten, no starch, you cannot make a loaf of bread from it. It is more analogous to milk powder and is strictly a protein fortifying agent. Food and Drug says that we must continue to call it by the familiar name that the consumer knows and recognizes—"soy flour," but, I say that the average consumer does not know what soy flour is, so let's change it to something else and then educate them to its value.

I think that we will have to pass along to the research men of the industry and to the men of the Northern Regional Research Laboratory the major portion of the job in promotion of soy flour. While soy flour has grown over the last 6 or 7 years from less than 1 percent in volume of soybean oil meal to over 9 percent in the 1947-1948 crop year, it still is a long way from the place that it should rightfully have in human consumption.

Increasing its use in human consumption is going to depend largely on improvement of products or else a new swing to protein as a food selling point in this country. I think that we will have to rely on the former if we are to do the job in the near future and it, therefore, remains to the scientists of the soybean industry, of the Soya Food Research Council, of the Northern Regional Research Laboratory, and of collaborating universities to do this job of ferreting out the weak points in soy flour and improving the product to the point where it can get universal recognition as the best and cheapest source of high quality vegetable protein.

The world is crying for better diets and it is only through the proper utilization of vegetable proteins that the world can hope to attain a balanced nutrition and eliminate the hunger that so often is a contributing factor to new wars.

— s b d —

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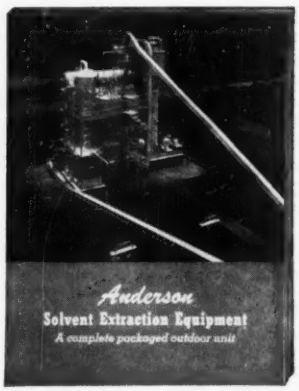

A new booklet entitled, Anderson Solvent Extraction, has just been published by the V. D. Anderson Co., describing their unique outdoor solvent extraction unit and its operation. This booklet contains a functional description of Anderson solvent extraction plants, tracing the flow of material from the day's run bin to the finished mill and product oil. A large flow sheet diagrams both the preparation and meal conditioning equipment as well as the outdoor solvent extraction unit. Exclusive features are pictorially described including the Anderson flaking mill, safety features, patented settling chamber, solvent recovery system, remote control features, controlled pressure toasting, etc. Pictures are shown of typical Anderson solvent extraction unit installations. For a complimentary copy, write on business letterhead to the V. D. Anderson Co., 1976 W. 96th St., Cleveland 2, Ohio.

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Soybean Oil Meal . . .

THE IMPORTANCE OF QUALITY

in Present Day Feed Formulation

By RALPH C. HOLDER

Presented at Soybean Conference, Peoria, Ill.

IT IS GENERALLY agreed that there is considerable variation in the quality of soybean oil meal as produced by different processors. This is certainly true of other protein concentrates. The variation in the quality of such protein concentrates as meat scraps, fish meal, and tankage is due to two factors—variation in raw material used and variation in methods of processing. On the other hand I believe that we in the soy processing industry have the distinct advantage that our raw material, the soybean, is quite uniform in its amino acid content and that differences in the quality of the soybean oil meal protein are primarily due to processing conditions.

Kuihen and Lyman, Journal of Bio. Chem. 177: 29, 1949, reported that soybean meals prepared from 20 strains of soybeans showed quite uniform distribution of essential amino acids.

We have studied different varieties of soybeans (Lincoln, Dunfield, Illini, Richland, Earlyana, and Hawkeye). Based on analyses for protein, methionine, and choline, and the nutritive value as determined by rat-growth tests, we were unable to show any definite superiority of one variety compared with another. We believe that it is safe to proceed on the premise that by proper processing methods, we can produce uniform, high quality soybean oil meal from the various varieties of beans being grown. Our experience in producing soybean oil meal indicates that this is true.

We can look back to the period of World War II and postwar years with a feeling of great satisfaction. We know that soybean oil meal has been a primary factor in supplying the protein required to supplement poultry and swine rations, and that on the whole good results have been obtained. I am going to talk about protein quality of the non-ruminant because we know that it is of more importance than in ruminating animals.

The principal protein supplements being used in poultry and swine feeds today are meat scraps, tankage, fish meal, and soybean oil meal. There are, of course, in addition supplies of corn gluten meal, corn gluten feed, skimmilk, peanut meal, etc., which go into poultry and swine feeding.

The production of these principal protein supplements for poultry and swine in 1948 was approximately as follows:

	Tons
Meat Scraps	550,000
Tankage	178,000
Fish Meal	150,000
SBOM	4,000,000

With such supplies available it has obviously been necessary to use soybean oil meal as a primary source of protein in poultry and swine feeds. Likewise, with this ratio of supplies it is obvious why meat scraps and tankage have been selling for 60 to 100 percent more than soybean oil meal and fish meal, 300 to 400 percent more.

No Overproduction

If livestock are properly fed, we will probably not over-produce protein in your lifetime or mine. By the combined efforts of the agricultural colleges and feed manufacturers, considerable progress has been made in the promotion of proper supplementation of farm-grown feeds with adequate proteins, vitamins and minerals.

I do not believe the soy processing industry can however, afford to sit back and fail to do whatever is necessary to produce uniform, high quality soybean oil meal.

It was certainly fortunate that prior to World War II enough progress had been made to enable us to know how to use soybean oil meal as a primary source of protein, with relatively small amounts of animal protein, and give good performance.

During the war soybean oil meal certainly made a great contribution to the increased production of meat, milk and eggs. Today, however, the progressive manufacturers in the feed industry—because it is a highly competitive industry—are keenly interested in how to increase the efficiency of rations. They are not interested in just a good soybean oil meal. They want the best soybean oil meal.

Today protein quality occupies a leading position in nutritional research. One cannot produce a truly high quality and productive poultry or swine feed today, in volume and in an economical manner, without relying on soybean oil meal as a primary source of supplementary protein. If the soybean oil meal a feed manufacturer receives is not of high quality, his ration cannot be of top quality.

APF a Smoke Screen

We have recently heard a lot about the Animal Protein Factor. In fact it has almost become a smoke screen, blinding people to more important factors in the production of high quality and efficient rations. APF factors are important. They will extend supplies of animal protein concentrates and help overcome their variability with respect to vitamin B_{12} and probably one or more additional factors. However, there are many essential nutrients in a balanced ration. B_{12} meets only one requirement which is no more or no less important than other requirements.

The importance of protein quality as compared with the APF for example, is illustrated by the following experiment just completed at our research farm last week. A group of fast growing chickens (cockerels and pullets), fed an all-vegetable-protein ration without supplementation with any APF source in the ration averaged 3.3 pounds at 12 weeks of age. Supplementation with condensed fish solubles, an excellent source of APF factors, increased growth. Without an APF supplement they reached a weight of 3.3 pounds. With an APF supplement they reached a weight of 3.65 pounds. However, if there had been a marked deficiency of any essential amino acid growth would have been substantially reduced. Quality protein is of primary importance to growth and each indispensable amino acid is a critical addition to a balanced ration.

In the last 20 years the most sen-

sational discoveries in the science of nutrition have been the many vitamin factors. There are undoubtedly more vitamins yet to be discovered. However, the stage is now set for important developments in protein quality and further development of knowledge of the inter-relationship of amino acids and vitamins.

Re-evaluation

With each new development in nutrition, it becomes necessary to re-evaluate our former knowledge. With all this information on vitamins at hand, it is now possible and important to intensify the study of amino acids.

There are 10 to 11 indispensable amino acids required by different species. If any one amino acid is lacking, the efficiency of the protein is correspondingly reduced. Rose and co-workers, J. Biol. Chem. 176: 753, 1948, stated that "during periods of 28 days, animals (rats) which received the 10 essential amino acids, only, in an otherwise adequate diet, gained approximately 70 to 75 percent as much as their litter mates which consumed 19 amino acids. Apparently the cells were not able to synthesize all the non-essential ones fast enough. In feeding practice the non-essential amino acids cannot be entirely disregarded.

What is meant by the quality of soybean oil meal?

(1) It must be heat-treated so as to destroy the anti-trypsin enzyme. This means it must be uniformly heat treated. A solvent extracted meal cannot be speckled with white particles as this shows it obviously has not been properly heat-treated.

(2) It must be heat-treated so as to free the methionine and cystine. I realize there is a difference in opinion as to this matter, but I believe proper heat treatment makes methionine and cystine more readily available.

(3) We must apply heat carefully so as not to destroy amino acids.

(4) We must produce a granular type of product, free from dust.

(5) We must regulate the moisture to a normal level.

In selling soybean oil meal we are primarily selling available, indispensable, or essential amino acids which are required in definite amounts to supplement the deficiencies of grains and their by-products. Our production of soybean oil meal will be rated basis its ability to supply these essentials of a balanced ration.

The following assays, conducted in our laboratory on white rats, show variations in protein quality on some commercial productions of soybean oil meal that we have recently tested.

APF factors are important in livestock and poultry diets, but they may be over-emphasized. Other requirements are just as important.

PROTEIN ASSAYS WITH WHITE RATS

	Nutritive Value* (%)	Efficiency Compared with Dried Skimmilk** (%)
Vacuum dried skimmilk (control)	2.1	100
Raw soybean	0.9	43
SBOM No. 1	1.96	93.3
SBOM No. 2	1.56	74.3
SBOM No. 3	1.60	76.2
SBOM No. 4	1.47	70.0
SBOM No. 5	1.75	83.3
SBOM No. 6	1.38	65.6
SBOM No. 7	1.42	67.6
SBOM No. 8	1.98	94.2
SBOM No. 9	1.25	59.5
SBOM No. 10	1.30	61.9
SBOM No. 1 plus 0.2% methionine	2.15	102.4
SBOM No. 3 plus 0.2% methionine	2.05	97.6

* Grams gain per gram of protein.
** Vacuum dried skimmilk powder.

You will agree that this represents considerable variation in protein quality. Some of the samples are practically equal to dried milk protein. Based upon amino acid assays, the protein of soybean oil meal is practically speaking, equal to dried milk protein. Some of the soybean meals were only 60 to 70 percent as efficient as the milk protein. When methionine was added to a properly processed soybean oil meal, it fully equalled dried milk protein. On chick tests a properly processed soybean oil meal plus methionine has proved to be fully equal to *any protein*, or combination of proteins, in supplementing grains and their by-products. On the above assays B_{12}, or other factors in the APF, were not added to the test rations. Since milk is a fair source of B_{12}, this addition to soybean oil meal would improve the growth response of the soybean oil meal protein.

An inspection of these samples of soybean oil meal indicated some were overheated. Some contained white specks, indicating all the meal was not properly heat treated.

I don't believe we can produce all of our soybean oil meal with a nutritive value of 1.90. I believe we can, by skill, proper equipment, and supervision come close to doing so.

We have a considerable amount of information on the amino acid requirement of chicks. Work is being done on the amino acid requirements of the pig. Methods are being developed for assaying proteins for their amino acid content. Our knowledge of protein quality will develop rapidly, and soybean oil meal of high quality will be demanded.

Amino acid assays alone cannot provide the whole answer on protein quality. A knowledge of amino acids and their distribution in feeds can serve as a means of the selection of economical protein mixtures.

If excess heat is used in the expeller process or in toasting meal, amino acids may be destroyed or bound into an unavailable form. Work on heat treating casein has shown that lysine and histidine were quite easily rendered less available.

On the other hand heat treating cottonseed meal decreased the quality of this protein and it was not due to lysine and histidine damage. The application of heat to soybean oil meal must be controlled if high quality soybean oil meal is to be produced.

Moisture Content

Certainly the soy processing industry must regulate moisture content of meal within the legal limits. A tentative regulation of 8.5 percent moisture in soybean oil meal was passed by the Association of Official Agricultural Chemists at the last meeting of this group in Washington, D. C., last fall. Based upon laboratory tests it would appear that such a level of moisture in soybean oil meal is entirely impractical. When soybean oil meal was held in a humid atmosphere (76 percent) at 68°F, it rapidly picked up moisture. This was a laboratory test. Before next fall our industry must study this moisture problem. If 8.5 percent moisture meal is hydroscopic, then no one could conform to such a regulation. We must present evidence to justify a practical level of moisture in soybean oil meal. In the meantime we must carefully avoid any excessive amounts which will intensify the problem now before us with the A.O.A.C.

It is entirely possible that drying solvent extracted meal down to 8.5 percent moisture might decrease its nutritive value. This also should be studied.

I don't want to leave the impression that a large proportion of the production of soybean oil meal is below what is desired from a quality standpoint. I do want to leave with you the thought that today soybean oil meal is the most important source of protein in this country for poultry and swine feeding. Properly processed soybean oil meal is fully equal to the best quality of meat scraps and tankage on the market and superior as a source of essential amino acids to much of the production of meat scraps and tankage on the market which we have studied in our laboratory.

Today properly processed soybean oil meal is the most practical source of all of the essential amino acids except methionine (and cystine) in which it is slightly deficient, and there is evidence that APF factors are somehow associated with the utilization of methionine, cystine, and the vitamin, choline.

The farmer and the feed manufacturer need an economical source of indispensable amino acids to supplement grains and their by-products. Soybeans are a very economical source of these essentials to balanced rations. Our job as soy processors is to convert these "wonder beans" into a uniform, high grade, dependable source of amino acids which, when mixed with grains along with the many essential vitamins and mineral supplements will do a highly efficient job of producing meat, milk, and eggs.

Everett Daily, manager of the Farmers Cooperative Co., presents Remington Soybean Show trophy to 16-year-old Larry Tyler, sweepstakes winner.

WINNER AT ANNUAL REMINGTON SHOW

A 16-year-old farm boy, Larry Tyler was grand sweepstakes winner of the 12th annual Remington Soybean Show held at Remington, Ind., Dec. 13.

Larry's samples, from 4½ acres of Lincolns grown on the farm of his parents, Mr. and Mrs. Hartley Tyler, of near Remington, competed with 120 entries in the seven divisions of the show to win top honors.

Jack Luck, 13, son of Mr. and Mrs. Ray Luck, also of Remington, was reserve grand champion with Hawkeyes.

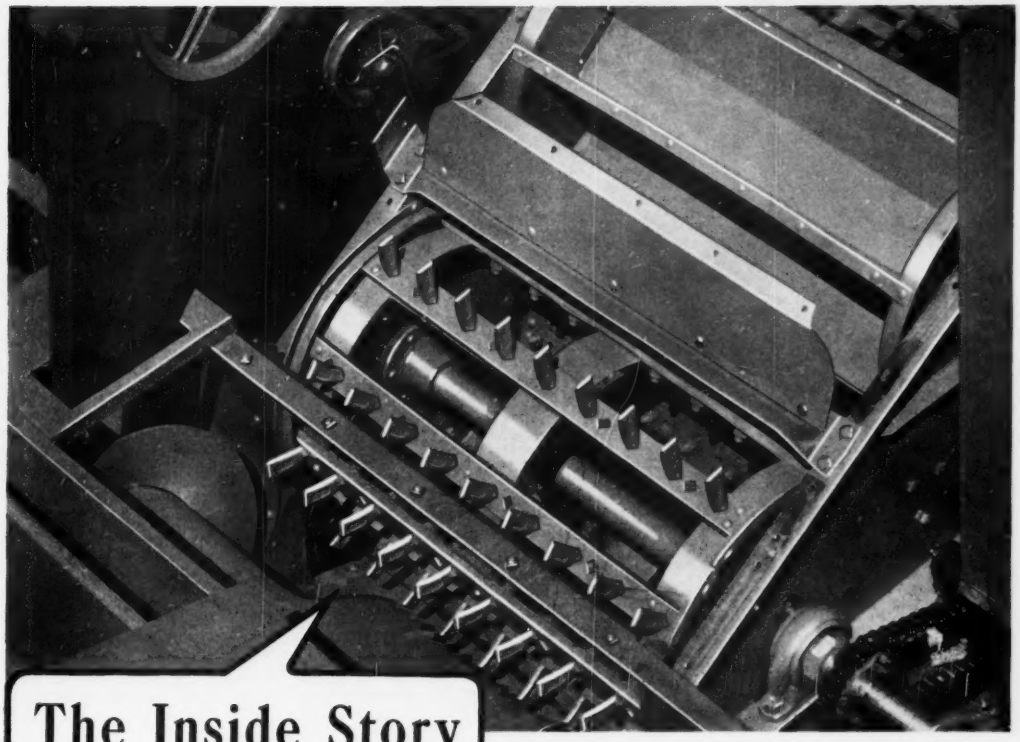
Awards were presented by Everett Daily, manager of the Farmers Cooperative Co. at Remington. Winners in the other divisions were J. Macshively, Gene Jennings, Charles Ford, Gaylord Sommers and Diemer Brothers.

Farmers from a radius of 75 miles attended the day-long show that was climaxed by an evening banquet at the high school gymnasium.

Speakers included E. W. Busche, Monroe, Ind.; K. E. Beeson, Purdue University extension agronomist; and J. W. Calland, managing director of the National Soybean Crop Improvement Council, Decatur, Ind.

The Remington show is sponsored by the Remington Service Club in cooperation with the Remington vocational agriculture department and the county extension service.

Chester B. Biddle, Biddle Farms, Remington, is chairman of the show. Other members of the committee are Jerome I. Stevens, Everett E. Fultz, William Shively, William Brant and Glenn L. Kinsell.



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The originator of Multi-Purpose Food describes the scientific approach toward solving world food problems

WE COULD FEED THE WORLD

By HENRY BORSOOK

(Condensed from Engineering and Science)

We have the tools and the technology to feed everyone in the world with our present resources. And yet it's been estimated that 80 percent of the world population normally suffers from under-nutrition or malnutrition.

One hears any number of explanations for this ironic situation—but at the bottom of them all is the simple fact that we still think of food in terms of the 19th century.

One important item among the great advances in this century was the discovery that, as far as the physiology of the body is concerned, the source of an essential nutrient is immaterial. It doesn't matter whether it is grown or synthesized in the factory. The economic and social implications of this finding are enormous. In fact, no one can see how the present world shortage of essential nutrients can be solved without taking advantage of this great scientific advance.

Present technological knowledge and production facilities can, I would guess, supply all the vitamins and minerals needed for optimal nutrition of all the people in the world, including the billion very poor of Asia. But there can be no question that more calories and protein need to be produced.

One thousand million people of the world need more and better proteins. We cannot yet manufacture or synthesize proteins. As far as we can see, for a long time to come it will have to be grown, whether as animal or vegetable protein. Animal protein is a luxury, which is fine if you can afford it. Most of the people of the world cannot afford much of it. Vegetables, with a few exceptions, such as the legumes, are not rich sources of protein. And vegetable protein as a class is not first class.

The prospect is not hopeless. I can see two things which can be done, which would help a great deal. First we should use far more of the protein now grown for human consumption.

The other necessary step is education. Processors and consumers need to be taught to so blend incomplete proteins that they will cover each other's deficiencies.

As an example of the kind of thing I have in mind, I will tell you briefly about a food I had a hand in developing. You may know it by the name of Multi-Purpose Food. The specifications which were given me in the devising of this food ran somewhat as follows: Three servings were to supply the Recommended Daily Allowances of protein, minerals, Vitamins A, B^1, B^2, and Niacin. The food was to be palatable, to blend readily with other foods when other foods were available, to be eaten by itself when they were not. The meal had to be quickly cooked in not more than 10 minutes, and require only the most rudimentary cooking equipment. It had to keep from 6 months to a year, packaged in a dry state. It was to cost not more than 3 cents a meal.

The major ingredient chosen finally was soy grits, with a low fat content. The soy protein was chosen because it was the best cheap protein from a nutritional point of view.

The grits have a good texture. One need add only water to make a good soup. If only a little water is added, it is stew. It can be used as a meat extender.

To the grits were added Vitamins A, B^1 B^2, and Niacin, so that one serving of 2¼ oz. would supply one-third of the Recommended Daily Allowances of protein and these vitamins.

Certain spices were added. These are of such a character that the food blends readily with any other food. For example, if it is used with a little fish, it takes on the character of shall we say fish-balls; with cabbage, of a cabbage dish. As it stands it is low in methionine and in calories. The deficiency of these two essential nutrients is met by bread.

The use of foods of this character should be considered in two extreme situations or conditions. One is semi-starvation, in which even the objection of monotony is removed; the other and more common occurrence is where people have some food, but for budgetary reasons cannot afford enough first-class animal protein.

It is this example I have in mind when I say that we have in our hands the scientific tools and the technology to prepare foods to meet almost any situation. The use of industrial and agricultural by-products insures their low cost; vitamin concentrates, synthetic vitamins, and commercial minerals will make them as nutritious as an expensive diet scientifically selected from natural fresh foods. In no other way can the needs of such countries as China, India, and even portions of Europe today be met.

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COTTON ACREAGE ALLOTMENTS

and Marketing Quotas

By JOHN H. DEAN

Assistant director, cotton branch, Production and Marketing Administration, before the Soybean Conference, Peoria, Ill., Jan. 17.

Cottonseed has come a long way since the days when it was merely a troublesome waste product derived from the ginning process. Today, as you well know, not only is cottonseed an important source of income to farmers producing cotton, but also the basis of a multi-million dollar processing industry.

The importance of the cottonseed processing industry and its relationship to the total production and supply of vegetable oils and protein meals naturally raises some questions about what influence cotton acreage allotments and marketing quotas will have on the production and supply of cottonseed for processing. Questions which concern processors of oil seeds revolve around two points: one, the effects on volume of business and two, the possibility for changes in the competitive position of the various vegetable oils and protein meals.

Since the production of cottonseed is directly related to the production of lint cotton, the effects of an acreage adjustment program on the production of seed will depend upon the effectiveness of the acreage allotment program in accomplishing its designed purpose; namely, to bring the supply of cotton more nearly in line with the demand. For discussion purposes we shall assume that the program will accomplish the intended purpose.

To get an insight into how the acreage adjustment program will affect the processing industry and the supply of edible oils and high protein content feed meals it is necessary to take a quick look at a few figures. From 1939 to 1942, the last year of acreage restrictions prior to the war, production of cottonseed ranged from a low of 4.6 million tons to a high of 5.3 million tons. From 1943 to 1948, which may be termed the war and early postwar period, production of cottonseed ranged between 3.5 million and 5.9 million tons. The 1949 production will of course, be about 6.5 million tons. It is obvious from these figures that wide fluctuations in the supply of cottonseed occur from time to time which are due to factors wholly unrelated to acreage restrictions. If the 1950 production estimate (and this is based on a 5-year average, 1944-1948) is fairly accurate, there will be a net change of minus 27 percent between the enormous 1949 production of cottonseed and the expected 1950 production.

The following table illustrates how the 1950 estimated production compares with previous years' production of cottonseed, quantities crushed, and production of major products derived from processing, oil and meal.

Cottonseed: Total Production, Quantity Processed, and Production of Crude Oil and Cake and Meal, U. S., 1939-1950

Year Beginning August	Cottonseed Production (1,000 tons)	Quantity Crushed (1,000 tons)	Crude Oil Produced (million lbs.)	Cake and Meal Produced (1,000 tons)
1939	4,869	4,151	1,325	1,882
1940	5,286	4,398	1,425	1,954
1941	4,553	4,008	1,250	1,753
1942	5,202	4,498	1,401	1,995
1943	4,688	3,955	1,236	1,854
1944	4,902	4,254	1,324	1,954
1945	3,664	3,262	1,018	1,434
1946	3,513	3,090	973	1,363
1947	4,681	4,081	1,275	1,898
1948	5,945	5,333	1,704	2,391
1949*	6,477	5,802	1,810	2,582
1950**	4,704	4,092	1,285	1,862

Source: All figures from U.S.D.A. and Bureau of Census Publications and official records.

* Preliminary

** Production figures based on estimated production of lint and average ratio of lint to seed. Processing figures based on averages for previous 10 years.

Another pertinent question relative to the acreage allotment program is what use will the land removed from cotton production be devoted to. It is, of course, well

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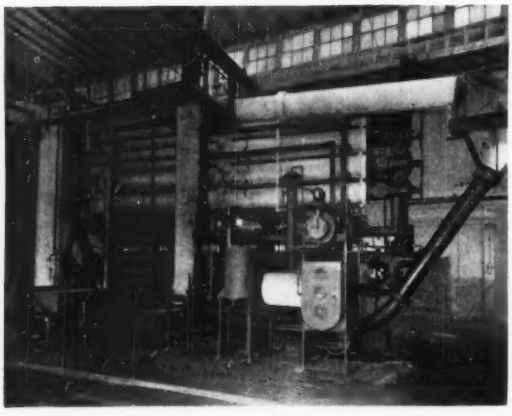

● Here is a small (twenty-five ton), efficient extraction system especially developed for use in smaller operations. This plant, thoroughly tested and proved, uses non-flammable Trichlorethylene solvent and is manufactured under exclusive patent rights of Iowa State College. Operating data on this system, including figures on consumption and yield, will be provided on request.

You are invited to see this plant in actual operation.

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known that during the last few years, because of war needs and relatively favorable prices, there has been a tendency for farmers to cultivate low producing lands continuously. With the return of acreage allotments and somewhat lower prices, it is quite probable that in many areas a considerable acreage of low-producing land will be taken out of intensive use and permitted to lie fallow or perhaps returned to pasture.

If we assumed that there would be no acreage restrictions on soybeans, it might be of interest to review some possibilities under such an assumption. In the cotton producing states which normally grow some soybeans for harvesting there will be a net reduction in land planted to cotton of roughly 1.5 million acres. The distribution of this acreage is as follows:

State*	Difference Between 1949 Planted Acreage and 1950 Cotton Acreage Allotment
Arkansas	-538,595
Louisiana	-196,703
Mississippi	-544,455
Missouri	- 87,161
North Carolina	- 96,847
Tennessee	-116,347
Total	1,580,108

* States in which an average of less than 25,000 acres of beans have been harvested over the last 10 years omitted.

Assuming that 50 percent of this acreage (790,054) would be planted to soybeans, what effect would this have on the over-all supply of beans for processing? An average per-acre production of 15 bushels appears to be a liberal figure for the acreage removed from cotton. This would mean an increase of roughly 12 million bushels of beans to the total supply. If this production were to be achieved, and production in other areas maintained at the 1948 rate, the addition of a total of 12 million bushels of beans to the crushing supply would represent an increase of only 6.5 percent over the quantity crushed in 1948.

It does not appear, therefore, that the acreage allotment program for cotton will greatly affect the long-time production pattern of oilseeds. Assuming a normal production of other oilseeds, the reduced acreage planted to cotton will mean a slight curtailment in the total quantity of oilseeds available for processing in 1950. Estimated production of cottonseed for 1950 will be below the huge 1949 crop but will be almost exactly equal to the 10-year (1939-48) average production.

—s b d—

NEW FARM PRODUCT USE

New foods, new cotton fabrics, better means of storing and processing essential oilseed crops, and advances in the use of farm products as industrial raw materials are among the research achievements described by the U. S. Department of Agriculture's Bureau of Agricultural and Industrial Chemistry in its annual report for fiscal year 1949, released Jan. 16.

Research developments that are benefitting producers and processors of important oilseed crops in all sections of the country have a prominent place in the Bureau's report. They include advances in solvent extraction of cottonseed and peanut oils; work that has led to commercial pilot-plant production of a new protein gel from soybeans, which has unique properties for use in foods, adhesives and other products; and chemical treatments that prevent deterioration of flaxseed and rice stored in damp climates. Improved methods of producing cottonseed and peanut protein for industrial uses, and investigations looking toward manufacture of superior peanut butter, are among other projects reported in this field.

IF EVERY FARMER KNEW
The Full Value of Inoculated Legumes

*ABOVE: Comparative yield from two 250-foot rows—nubbins on left did not have benefit of inoculated cover crop.

The bigger yields of clovers, alfalfa, soybeans and lespedeza you get from inoculation is not your only benefit. Inoculation with NITRAGIN helps these and other legumes but it helps boost yields of other cash crops, too. The Georgia farmer pictured above reaped 56.3 *extra* bushels of higher quality corn from a test acre that followed an inoculated legume cover crop. The pile on the right easily shows the extra benefits of inoculating all legume crops, whether they are used for hay, seed, or soil-building. For best results with legumes, always use NITRAGIN . . . the inoculant in the orange-colored can.

*Name of farmer on request

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NEW POWER like the brand-new 6-cylinder "Rouge 254" truck engine. Thus, for 1950 you have a choice of four great engines, two Sixes, and the only two V-8's in trucking. Only Ford gives you a choice of V-8 or Six.

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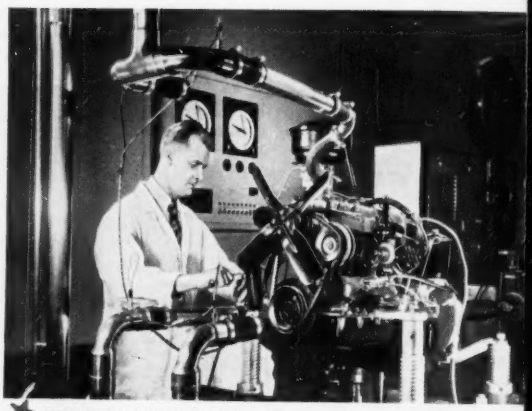

NEW 110-HORSEPOWER SIX! The new "Rouge 254" makes the 1950 Ford F-6 the most powerful 6-cylinder truck Ford has built. The ultra-modern "254" has Free-Turn exhaust valves, Autothermic pistons, chrome-plated top piston ring, High-Lift camshaft, and many other power-producing, cost-saving, smart ideas. ★ A brand-new, 4-speed Synchro-Silent transmission is standard equipment with the new "254" engine.

Model F-2; 5,700 lbs. G.V.W. Express or Stake

Model F-1; 4,700 lbs. G.V.W. Panel, Pickup or Stake

Model F-3; 6,800 lbs. G.V.W. Express or Stake

Model F-5; 14,000 lbs. G.V.W. Wheelbases; 134, 158 and 176 in.

Model F-4; 10,000 lbs. G.V.W. with Duals

Model F-3 Parcel Delivery Wheelbases; 104 and 122 in.

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No. 1 in value. Over 175 models! Up to 145-horsepower! The only V-8's in trucking! Two new Big Jobs rated up to 39,000 lbs. gross train weight! They're Bonus Built which means big reserves of strength and power.

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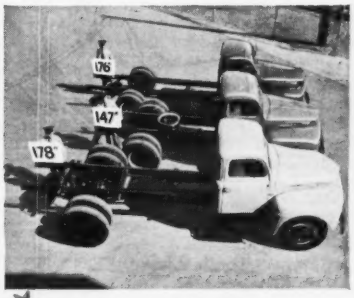
—IN A FULL LINE OF OVER 175 TRUCK MODELS!

★ **NEW F-7 REAR BRAKES!** Big 15" x 5" aluminum shoes. Double-cylinder, hydraulic booster, self-energizing type.

★ **NEW AIR BRAKES** available on the Ford Model F-8 Big Job combine smooth flexibility with immediate, positive action.



★ **NEW WHEELBASES!** Three of them for 1950 Ford Trucks. Models F-5 and F-6 now have a 176-in. wheelbase for bodies in the 15-ft. range. The 145-horsepower Ford Big Jobs have added two new wheelbases to get a total of five. First, a 147-in. wheelbase for tractors and dump trucks. Second, a 178-in. wheelbase for 15-ft. bodies.

★ **NEW PARCEL DELIVERY!** Forward control chassis with grille, windshield and quarter-windows. You add your choice of bodies. Available in Series F-3 and F-5 (Special order).

★ New single-speed rear axle for F-8 ★ New extra-heavy duty clutch with "254" engine ★ Million Dollar Cab ★ Air Wing door glass ventilators ★ Level Action cab mounting ★ New Double Channel frame for Big Jobs ★ Gyro-Grip Clutch ★ New single-speed axle for F-6 ★ Roll Action Steering ★ New extra-heavy duty drive line for F-6 ★ Quadrax rear axles ★ 4 engines—Choice of V-8 or Six ★ New heavy duty, 3-speed Synchro-Silent transmission available for F-1 to F-3 ★ Choice of over 175 models ★ Bonus Built construction.

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Model F-6 Cab-Over-Engine
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Model F-6; 15,500 lbs. G.V.W.
Wheelbases; 134, 158 and 176 in.

Model F-7; 19,000 lbs. G.V.W.
35,000 lbs. G.T.W.

Model F-8; 21,500 lbs. G.V.W.
39,000 lbs. G.T.W.

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SOYBEAN PRODUCTION *in Kentucky*

By E. J. KINNEY
Head, Department of Agronomy
University of Kentucky

SOYBEANS should be grown on fairly level land, and for that reason only a small part of Kentucky is well suited to producing them. Growing soybeans for seed in Kentucky is largely confined to several counties in the western part of the state which have a large acreage of bottomland, much of it subject to overflow. Henderson, Daviess and McLean counties produce about half the total soybean seed crop of the state.

Soybeans for hay, however, are most extensively grown in the eastern, or mountain, part of Kentucky. A small acreage, alone or in combination with other crops, chiefly corn, is grown in practically every county in the state. They are used mostly on small farms. Large acreages are not often sown.

On the upland soils of Kentucky, even on those of the bette class, few farmers have been able to obtain good average yields of soybean seed. This is possibly because most upland soils do not hold moisture as well as the alluvial soils of the bottomlands. It is true that soybeans are quite drouth-resistant and the growth of the plants is not greatly affected by short periods of dry weather. However, the number of pods set seems to be affected by drouth at blooming.

Soybeans are proving a very desirable crop on overflow bottomland which in the past was cropped to corn continuously. Where the straw is returned to the land, as is the general practice in seed growing, the beans take considerably less nitrogen from the soil than corn. Thus, where one crop of beans is grown to two of corn, yields of corn are usually considerably better than where corn is grown continuously. In addition, if the soybeans are handled properly, weed control—always a serious problem on bottomland—should be made easier.

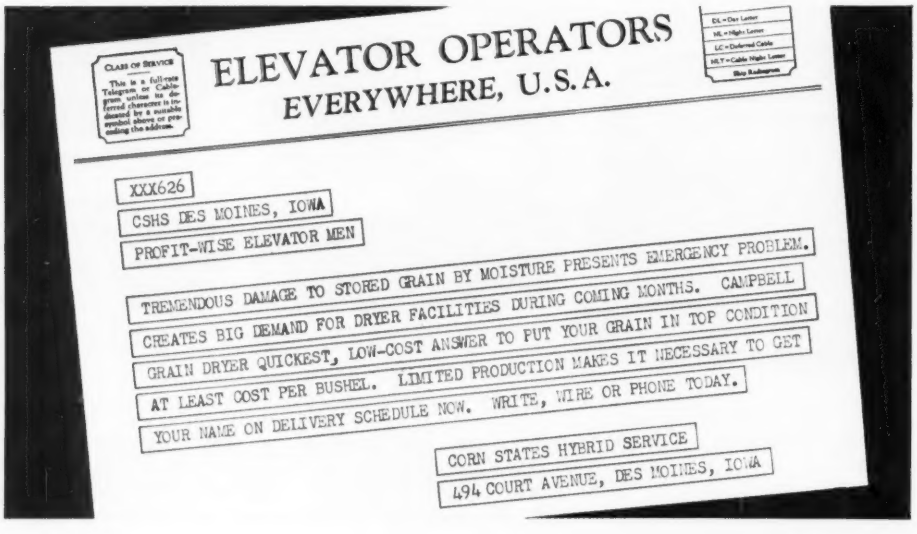
On land well adapted to soybeans but not subject to overflow, soybeans are a desirable crop for the grain farmer who sells all grain crops, provided the returns are not much less than from corn. Where corn has been grown 2 years in succession in the rotation, a common practice, there are advantages in substituting soybeans for the second crop. This helps to conserve nitrogen by raising a legume instead of a nonlegume, and it provides more favorable conditions for seeding a small-grain crop. Usually the yield of small grain is better after soybeans than after corn. Labor often can be used to better advantage by greater diversification of crops, and of course diversification lessens the danger of loss from crop failure.

Soybeans undoubtedly are our most valuable emergency hay crop in Kentucky. They make good quality high-protein hay when cut at almost any stage of growth, and they make a fair yield even when planted as late as mid-July. The hay is rather difficult to cure, however and is likely to be damaged by rain before it is dry enough to house safely. It is also rather expensive to produce, especially when seed prices are high, as at present.

Varieties

Until the past 2 or 3 years, medium late varieties of soybeans have been grown almost exclusively in Kentucky for seed production. Patoka and Gibson, rather recent introductions by the Indiana Experiment Station, are perhaps the best of these. Two varieties from the U. S. Department of Agriculture—P.I.70218-2 and P.I.54563-5, called by farmers "U.S. dash 2" and "U.S. dash 5"—have been very popular, as has the Illinois variety Macoupin. These are all yellow-seeded varieties. In some counties of southwestern Kentucky, Ogden, a very late-maturing bean with green seed, is becoming increasingly popular. It yields heavily. Another late variety that has been grown to a limited extent is Arksoy.

Lincoln has proved a sensational performer and has practically re-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placed other varieties in parts of the Cornbelt. In 1946 in Kentucky, Lincoln yielded as well as the medium-late varieties, but in 1947 it yielded much lower than the medium-late varieties. It is possible that Lincoln will become the leading variety in Kentucky if further tests prove it to be as productive as later varieties.

Soybean variety tests have been conducted at the Kentucky Agricultural Experiment Station for a number of years, but several of the varieties included in the tests for the first few years have been nearly displaced by newer varieties. Lincoln has been included in the tests for only the last 4 years, and during this period it has yielded less, on the average, than the medium-late varieties with which it has been compared during the same years. The varieties grown in these tests and the average yields for the 4-year period were as follows:

Lincoln	20.2
Patoka	22.6
Gibson	25.1
P.I. 70218-2	19.1
P.I. 54563-5	22.2
Macoupin	21.3

Virginia Brown and Wilson Black are the most popular varieties of soybeans for hay in Kentucky. Another black bean—the Kingwa—is grown to some extent. Perhaps the best variety of all for hay is the Laredo. It has very fine stems and the forage cures faster than that of other varieties. It is not productive of seed, however; hence little is produced. The medium late varieties grown for seed are quite satisfactory for hay also.

The average yield of soybean seed in Kentucky for 1946 was 18 bushels an acre, as compared with 20.5 bushels for the entire country. Yields of 40 bushels per acre are occasionally reported by Kentucky farmers, and yields of over 30 bushels are quite common.

On good land, soybeans often yield 2½ to 3 tons of hay per acre.

NO ACREAGE CONTROLS ON 1950 BEAN CROP

The Department of Agriculture announced Jan. 30 that acreage allotments will not be established for 1950-crop soybean production.

Officials said that "the establishment of acreage allotments could not be justified by the existing situation."

The Department announcement declared:

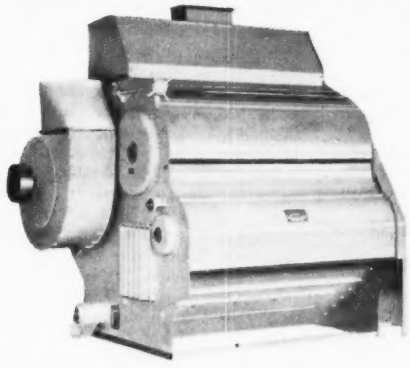
"The carryover or reserve supply of old-crop soybeans on Oct. 1—before the 1949 crop came in—was about 3 million bushels. This represented about 1.5 percent of the annual production in 1948 and 1949—a little more than 220 million bushels each year. This carryover is less than half the average carryover for the years 1944-48, a period of heavy demand.

"Based on the indicated domestic and export demand during the present marketing year," the department said, "it is not expected that the carryover next Oct. 1 will be materially higher than the carryover of last fall," the Department said.

"Establishment of soybean acreage allotments at this time for the 1950 crop, therefore, would have to be based on forward estimates of production in the coming crop season—in anticipation of future surpluses.

"If farmers continue sound production schedules, and do not overplant soybeans, production controls for the crop could be avoided in 1951 and later years. Future developments will rest primarily with farmers themselves," the Department said.

HOW CAN THIS MACHINE SERVE YOU?



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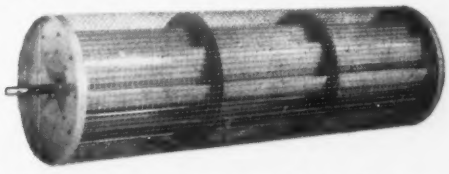
The Carter Scalperator is becoming more and more popular in the soy bean field. The machine is applied to the initial cleaning of soy beans at relatively high capacity to remove coarse and light foreign materials. The Scalperator provides an efficient aspiration on beans going directly to storage. Specially designed controls coordinate volume of beans going through the Scalperator with volume required for drying. It is valuable as a cold-blasting unit on beans following the dryers. Machines come in sizes to fit a variety of capacity needs. Compact, all-metal, all-enclosed, takes little power. Write for details today.

Here's the Basic Unit — the Hart-Carter Squirrel Cage Scalping Reel. Ingenious baffle plate construction retards flow of beans through the reel, insuring thorough rough scalping. Reel is self-cleaning.



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Elmer Mollett at left receives gold cup from A. J. Loutch of Missouri Farmers Association at at Mexico, Mo. Mollett won the 1949 Soybean Achievement Program.

RECOGNITION DINNER AT MEXICO, MO.

Audrain County lays claim to being the soybean capitol of Missouri. Mexico, the county seat, is as a result fast becoming soybean conscientious.

The Rotary Club of Mexico Jan. 20 acted as host to the 1949 Soybean Achievement Program sponsored by the MFA Cooperative Grain & Feed Co. Radio station KXEO listeners heard A. J. Loutch, general manager of the MFA Cooperative Grain & Feed Co., present Elmer Mollett of Route 1, Mexico a large gold cup and $100 in cash.

Mollet turned in a 39.4-bushel yield to top all entries in the 1949 Soybean Achievement Program. The contest was open to Audrian County and surrounding county soybean growers, but all awards (26) went to Audrain County farmers which almost cinched the County as tops in soybean production yields.

Acting as moderator during the noon program, Maurice Maze, manager of the MFA Soybean Oil Expelling Plant (branch of the MFA Cooperative Grain & Feed Co.), introduced Dr. W. W. Fetrow, Research Director of cotton and oil seed section of the Farm Credit Administration.

Dr. Fetrow, said, "Contests are 100 percent American . . . and this soybean achievement program is worthy in that it stimulates good farming practices."

Paul Hughes, field man for the American Soybean Association, talked on the merits and qualities of soybean by-products.

"A fact of much interest," said Hughes, "is that the oldest manuscript known to man is in Chinese. Translated roughly into English, its title is, 'How Long Has the Soybean Been a Friend of Man?'

"We think of soybeans as new yet thousands of years ago the Chinese were debating how long soybeans had been a friend of man!

"Yes, soybeans are a friend of man. They have made it possible for us to have sufficient quantities of meal for our livestock and have made the U. S. self-sufficient in edible fats and oils.

Enemies of Soybeans

"But not all men are the friends of soybeans. It is safe to say that no other crop in this country has as many enemies or so much misinformation put out regarding it as soybeans and their products.

"Let me tell you that you are wasting your time if you learn how to raise 100 bushels of soybeans to the acre and at the same time do nothing about answering these enemies of soybeans.

"You could call on these misinformed people yourself but that would cost you a lot of money. That is the job of the American Soybean Association. Our theme is, 'Soybeans are worth more money.'

"We do not mean that processors are not paying you all they can afford to pay. We mean that the end products of the soybean are potentially worth more and that our job is to promote these end products so the producer will get more for his soybeans.

"You can help in this promotion by joining the Association and backing its program."

Why Capitol

County Extension Agent John McClure explained why Audrain County claims the soybean capitol of Missouri.

McClure said 50 percent of the crop land in Audrain County had less than a 2 percent slope. Soils with steep terrain are subject to severe erosion if soybeans are grown extensively, he said.

"In the last 10 years," McClure stated, "soybean production has increased from 10 bushel yields to a high 22-bushel average in 1949." "This," he added, "is attributable to the application of lime, plant foods and the plowing under of green manure crops. These good farming practices," McClure concluded, "brought total production of soybeans in Audrain County in 1949 to over three million bushels."

As explained by Maurice Maze, the purpose of the 1949 Soybean Achievement Program was ". . . to encourage and stimulate the use of good farming practices so that the income from grain crops, grown on land suitable to be planted to cultivated crops, will be greater without reducing the productivity of the land; and to promote better farm management, better farm income and better farm living."

Maze continued, "It is recognized that soybeans, as well as corn, wheat, and other crops, removes various plant foods from the soil when a crop is grown, therefore good farming practices must be followed if they are to continue to be one of the leading cash crops in this area."

Manager Maze went on to say that in order to help promote a program of good farming practices for the area the MFA Cooperative Grain & Feed Co. in cooperation with the Extension Service and Vocational Agriculture program is sponsoring a long time Soybean Achievement

Program in which two classes of participants may take part.

Class A—Open to all farmers except those entered in Class B in the Counties of Audrain, Monroe, Callaway, Randolph, Montgomery, Boone, Ralls and Pike.

Class B—Open to members of the Junior Farmers Association, vocational agricultural students, Future Farmers of America, and 4-H Club members of Audrain, Monroe, Callaway, Randolph, Montgomery, Boone, Ralls and Pike Counties.

Winner of Class B entries, Bill Lierheimer of Mexico turned in a 32-bushel yield to win 50 dollars in cash and a small gold cup. Robert Schutte was second winning a bronze plaque and 20 dollars in cash.

Score card to be used in 1950 (some points changed from the 1949 contest) is as follows:

LIME—Soybeans planted on soil limed since 1942, 15 points.

PLANT FOODS—Soil should be tested and proper fertilizer applied unless fertilizer has been used with previous crop in 1949, 15 points.

INOCULATION — Soybean seed planted in 1950 to be inoculated, 5 points.

VARIETIES—One of the recommended varieties to be planted, 10 points. (Lincoln, Chief, or Wabash).

COVER CROP — Small grain seeded in fall of 1950 after soybean crop has been harvested, 10 points.

MARKETING—Soybeans to be marketed through a farmers cooperative, 15 points.

YIELD—One point will be allowed for each bushel of yield per acre.

Contest winner Elmer Mollett scored 109.4 points with his 39.4 bushel yield. Runner-up Charles Davenport of Centralia scored 107.3 points with his 37.35 bushel yield. Class B winner Bill Lierheimer racked up 103 points with his 32 bushel yield.

SAYS CEA: LIMIT BEAN SPECULATION

Specific limits on speculation by large traders in eggs, soybeans, wool tops and cottonseed oil are recommended by the 1949 annual report of the Commodity Exchange Authority, released by the U. S. Department of Agriculture.

Speculative limits are now being effectively enforced in grains and cotton, said J. M. Mehl, CEA administrator. Mehl said there is "urgent need for similar limits on speculative trading in eggs, soybeans, wool tops and cottonseed oil."

"Soybeans . . . have now become one of the leading futures-trading commodities, with speculative activity at times exceeding that in wheat and corn."

The speculative limits now enforced by the CEA, such as 2 million bushels in wheat futures and 30,000 bales in cotton, were established before the war by the Commodity Exchange Commission.

Mehl's report to the Secretary also summarizes the results of the CEA's investigation of the break in grain prices last February, and states that speculative trading on small amounts of margin money, as now permitted under the rules of most exchanges, constitutes a standing threat to the stability and price structure of the futures markets. On Feb. 8 and 9, 1949, wheat futures prices on the Chicago Board of Trade dropped 18 to 19 cents a bushel, corn about 14 cents, and soybeans 20 cents.

The major factor in the sudden fall in grain prices was the heavy liquidation of small speculators' accounts, the report states. "In the trading on Feb. 8 and 9 more than one-fourth of all the net long speculators were swept out of the market —24 percent of the total in wheat and corn and 35 percent in soybeans," the report continues. "Altogether, nearly 1,000 net long accounts were completely liquidated and 680 were liquidated in part. All but 58 of the net longs whose positions were wholly liquidated were small traders with holdings of less than 25,000 bushels each.

During the year specific recommendations for amending the act were embodied in proposed legislation introduced in the Congress as bills H.R. 4685 and S. 1751.

"Under these bills the provisions of the Commodity Exchange Act would be extended to futures trading in 11 additional commodities at present not under regulation.

"Under an amendment the Secretary would be empowered to fix minimum margin requirements on speculative transactions in commodity futures as a means of preventing excessive speculation endangering price stability. Margin requirements on hedging transactions would be exempt.

"The proposed legislation would also require the annual registration of commodity-trading advisory services, commonly referred to as market 'tipsters,' as well as commodity pool operators, and provide for regulation of their activities."

In summarizing futures market activity for the year ending June 30, 1949, the report states that the basic picture for most commodities remained one of relatively large futures markets. Activity in soybeans and lard on the Chicago Board of Trade, and in cottonseed oil on the New York Produce Exchange, were the largest on CEA records.

—s b d—

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BROKERS TO THE SOYBEAN PROCESSOR

MARGARINE BATTLE MOVES TO STATES

The long uphill fight by the American Soybean Association, the National Cotton Council, margarine manufacturers and various consumer groups to end federal restrictions on margarine neared final victory Jan. 18 when the Senate passed HR 2023 by the lopsided vote of 56 to 16.

Only hurdles left were committee conferences to iron out differences between Senate and House versions of the bill, and signature by the President, which was assured.

The only point of contention in committee was apt to be the Frear amendment added in the Senate. This would require all margarine to be packed in triangular shape so that pats cut from it would not resemble square pats of butter.

Margarine manufacturers were certain to fight this requirement, since it would make necessary the designing of new packaging machinery and might delay the changeover for a year or more.

Butter defeat on the final vote was more overwhelming than anyone expected. The butter forces mustered their full strength in the vote on the Gillette-Wiley substitute that would have made it a crime to allow colored margarine to move in interstate commerce. But they were defeated 48 to 37. Then they caved in on the final vote.

Anti-lynching and anti-poll-tax amendments as well as an amendment to reduce excise taxes were easily beaten down.

HR 2023 repeals all federal taxes and license fees on margarine. These include 10 cents per pound on yellow; ¼ cent on white; $600 annual manufacturers' tax on both yellow and white; $480 wholesaler tax on yellow and $200 on white; $48 annual retailer tax on yellow and $6 on white.

The Senate vote on the Wiley-Gillette substitute measure:

Democrats for: Gillette, Humphrey, Johnson (Colo.), Magnuson, McCarran, Murray, Taylor, Thomas (Okla.), Thomas (Utah).

Republicans for: Aiken, Brewster, Butler, Capehart, Cordon, Donnell, Dworshak, Ecton, Ferguson, Flanders, Gurney, Hickenlooper, Ives, Jenner, Kem, Lander, Malone, McCarthy, Millikin, Mundt, Schoeppel, Thye, Vandenberg, Watkins, Wherry, Wiley, Young.

Democrats against: Anderson, Benton, Byrd, Douglas, Downey, Eastland, Ellender, Frear, Fulbright, George, Graham, Green, Hayden, Hill, Hoey, Holland, Johnson (Texas), Johnston (S. C.), Kefauver, Kilgore, Leahy, Long, Lucas, Maybank, McClellan, McFarland, McKellar, McMahon, Myers, Neely, O'Conor, O'Mahoney, Pepper, Robertson, Russell, Sparkman, Tydings.

Republicans against: Bricker, Bridges, Darby, Hendrickson, Knowland, Lodge, Martin, Saltonstall, Smith (Maine), Taft, Williams.

Final vote on HR 2023, for: Aiken, Anderson, Benton, Bridges, Cain, Capehart, Darby, Douglas, Downey, Dworshak, Eastland, Ellender, Flanders, Fulbright, George, Graham, Green, Hayden, Hendrickson, Hill, Hoey, Holland, Jenner, Johnson (Colo.), Johnson (Tex.), Johnston (S. C.), Kem, Kilgore, Knowland, Leahy, Lehman, Lodge, Long, Lucas, McCarran, McClelland, McFarland, McKellar, Malone, Martin, Maybank, Millikin, Myers, O'Conor, O'Mahoney, Russell, Smith (Maine), Smith (N. J.), Sparkman, Taft, Thomas (Okla.), Tobey, Tydings, Vandenberg, Watkins, Williams.

Opposed: Butler, Cordon, Donnell, Ecton, Ferguson, Gurney, Humphrey, Langer, McCarthy, Magnuson, Mundt, Schoeppel, Taylor, Thomas (Utah), Thye, Young.

Twenty-four were listed as not voting.

Most states still retain restrictions of one kind or another on margarine. Sixteen—all in the North—ban yellow color. Passage of the federal law will have minor effect in these states until the color ban is lifted.

During recent months U. S. dairy farmers have begun to show a decisive change of interest. More and more of them have begun to question the wisdom of continuing the fight for anti-margarine legislation. They have expressed a growing belief that their funds and energies should be concentrated in an aggressive advertising campaign to proclaim the merit of butter.

States where yellow margarine is still banned by law are: Washington, Oregon, Montana, Wyoming, South Dakota, Minnesota, Iowa, Wisconsin, Illinois, Michigan, New York, Pennsylvania, Vermont, Connecticut and Delaware.

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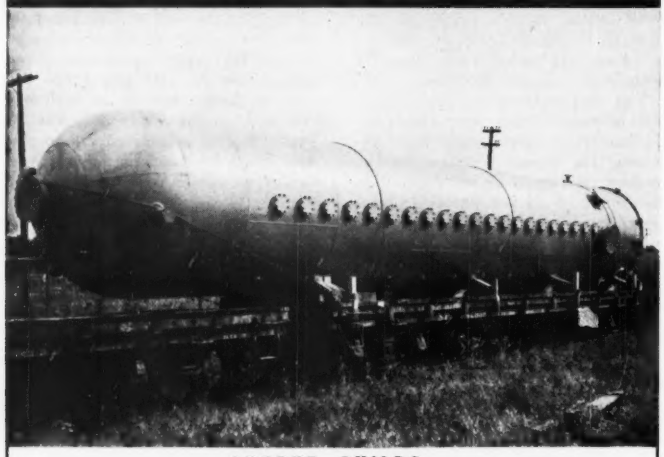

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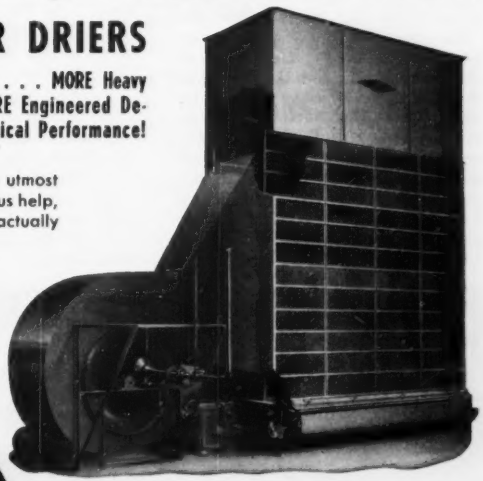

BERICO Drier, shown without cooler fan and fan enclosure. Special high carbon steel woven wire screens, forming 4 sides of dual, free-flowing columns, permit passage of tremendous quantities of low-temperature air through slowly moving mass of beans. Sizes for every capacity-need. Operate with Natural Gas, Oil, Butane or Propane.

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TO NEW GROWERS: BE SURE TO INOCULATE

Legume bacteria can carry over inactive periods much more successfully under sod than in cultivated land. At least, that is true of the bacteria that grow on the roots of lupines in the South, according to experimental results reported recently to the Southern Seedsmen's Association by Dr. L. W. Erdman, soil bacteriologist of the U. S. Department of Agriculture.

After a field had been in lupines inoculated with their special root bacteria and then left under sod three years, another planting of lupines on the same plot did well without inoculation. On the other hand, similar uninoculated lupine seed on a part of the same land that had been under clean cultivation those same years produced only a poor crop. Erdman concluded that because most southern farmers plant their lupines on cultivated land rather than on land just out of sod it is good practice to inoculate each planting.

Erdman also brought out some points on soybeans of interest to both seedsmen and farmers.

It is likely more and more soybeans will be grown in the South, particularly on soils taken out of cotton, and that there will be need for suitable innoculation. "Some people have had the idea," he said, "that cowpea bacteria work on soybeans. But they don't. Soybeans must have their own kind—a kind that doesn't grow on any other legume." He quoted results of tests at the West Florida Station: Five varieties even failed to produce any seed on uninoculated land, but when inoculated, yielded from 16 to 25 bushels an acre. One variety, Roanoke, high in oil, produced 5.2 bushels without inoculation and 25.35 bushels with inoculation, a gain of 387 percent. Other varieties showed gains of 48, 52 61, and 168 percent.

Dr. Erdman had said elsewhere that a good way to remember what legumes almost always need is to keep in mind that "inoculation," "investment," and "insurance" all begin with "in." "So," he says, "put the seed in right."

CANADIAN MARGARINE

Canada's 1949 margarine production is estimated at 73,958,000 pounds, reports Foreign Crops and Markets. The output by Provinces is not yet available but stocks as of Jan. 1, are reported (in 1,000 pounds) as follows:

The Maritime Provinces (including Newfoundland) 321, Ontario 912, Manitoba 228, Saskatchewan 102, Alberta 178, British Columbia 225, total 1,966.

A B C

STAGES IN THE ARTIFICIAL HYBRIDIZATION OF SOYBEANS—(A) Flower in the advanced bud stage at which the anthers are removed. (B) Flower with the stigma exposed—the stigma is surrounded by a ring of ten anthers. (C) Pollinated flower covered and protected by fastening a leaf over it with a pin. The tag records the cross made. The leaf at left is attached to the plant. Thus transpiration continues and this tends to keep the mutilated organs from drying out.

—Photos courtesy Illinois Crop Improvement Association

HYBRIDIZING BEANS A DIFFICULT ART!

Because of the small size of the flowers, the hybridizing of soybeans is one of the most difficult of the many arts the plant breeder practices. And the removal of the anthers is the most difficult part of this operation.

So minute and delicate are the organs that great care must be used to avoid injuring them. The flower is opened with a needle or forceps and after the anthers have been exposed, the 10 of them are removed with the point of a needle. With care several can be removed at a time, but so tiny are they that they must be counted to make certain all have been removed.

In cross-pollinating the flower, microscopic examination of the male parent's anthers is necessary to make sure they are at the right stage. After pollination a hand lens is frequently used to make certain that pollen grains are in actual contact with the stigma. A leaf is then pinned around the flower to protect it, and the instruments are sterilized in alcohol before the next cross is made.

This process is now being used to develop new soybean varieties. The plant breeders hope to make selections which will surpass, in yield, oil content and quality, even the recently introduced varieties.

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BIDDLE AN EXTENSIVE FARM OPERATOR

Chester B. Biddle, Benton County, Remington, Ind., new American Soybean Association director from Indiana, is a producer of certified seeds: soybeans, oats, hybrid seed corn. Biddle is a member of the seed improvement committee of the Ag. Alumni Seed Improvement Association, a subsidiary of Purdue Ag. Alumni Association.

"Chet," as he is known to home folks and a host of people over the state of Indiana has operated the farm where he was born for the past 25 years, and is now operating 640 acres. Farm seeds and Aberdeen-Angus cattle hold full sway on the Biddle Farms.

Twelve years ago the Remington Service Club, wanting to be of service to the local vocational agriculture department, took on the sponsorship of the Remington Soybean Show. This unique show, soybeans only, is holding forth each year, doing a better job of promoting good seed of the best varieties.

Chet has been a member of the Service Club's soybean show committee all these years, and has been the chairman for the past several years. Soybeans are king for a day in Remington, Ind., on Soybean Show Day, and several other days for that matter when the harvest season is on and 25,000 bushels of soybeans roll across the local elevators' scales day after day.

But more about the Biddles. Mrs. Biddle is active in community life and a teacher in the Presbyterian Sunday School. Daughter Suzanne is in high school and son Billy is in the grades.

Mr. Biddle is a trustee of the Presbyterian Church, president of the Gilboa Community Club, president of the Gilboa Township school board, a teacher of the teen-agers in the Presbyterian Sunday School, and was a scoutmaster for 10 years. He is chairman of the State Soybean Committee, a member of the Indiana Corn Growers Association and the American Soybean Association.

PHOSPHORUS TRIAL

In North Carolina fertilizer trials on soybeans, it was found that about one-half of the phosphorus contained in the plants up to the time they were 10 inches tall was derived from the fertilizer. The actual amount used, however, was rather small and even at the end of the growing season only 5 to 10 percent of the fertilizer phosphorus had been taken into the plant.

Radioactive phosphorus was used in the fertilizer as a tracer, according to W. L. Nelson, North Carolina agronomist in charge of the project.

—s b d—

ARREST OLEO USERS

Michigan state agriculture department inspectors have been ordered to arrest officials of schools using margarine in school lunch programs, according to Associated Press.

Miles Nelson, director of the department's bureau of marketing and enforcement said a survey showed that in one county 75 percent of the schools were using margarine.

Use of margarine in public institutions and sale of colored margarine in Michigan are illegal.

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Publications

THE SOY VERSUS BUTTER ARGUMENT

Crude, refined and hydrogenated soybean oils were compared with butter oil as components of reconstituted milk rations for dairy calves during the period from 4 to 60 days of age, in tests reported in the Journal of Dairy Science.

The milks, supplemented with minerals and vitamins A and D, were fed to four comparable groups of calves. Scouring was lowest for the calves fed butter oil, followed in order by the groups receiving hydrogenated, refined, and crude soybean oils. Frequent and severe diarrhea was accompanied by unthriftiness and lethargy.

The weight gains of all the calves did not differ significantly statistically. There were no appreciable differences in the hemoglobin levels among the various groups. There was no significant difference in the plasma vitamin A values among the groups of calves fed the various soybean oils.

The mean carotene levels of the blood plasma of the groups fed the butter oil and the crude soybean oil were considerably higher than those of the other groups. Blood plasma fat levels for the calves receiving butter oil were higher than those of the group fed hydrogenated soybean oil, but lower than the mean values of the other groups.

FILLED MILKS FOR DAIRY CALVES. II. COMPARATIVE EFFECTS OF VARIOUS TYPES OF SOYBEAN OILS AND OF BUTTER OIL ON HEALTH, GROWTH AND CERTAIN BLOOD CONSTITUENTS. By W. R. Murley, N. L. Jacobson, G. H. Wise and R. S. Allen. Journal of Dairy Science, 609-19. 1949.

Review of Subject

Is butterfat more nutritious than other fats, as the butter men claim, or vice versa?

This is an argument that is not apt to be settled soon. The consensus among nutritional investigators seems to be that the common animal and vegetable fats are about equal in over-all nutritional value.

But the opinion is far from unanimous. Some workers have confirmed the apparent superior growth-promoting value of butter. Others have demonstrated better growth with vegetable oils and margarines. There's need for further research.

MINOR FAT-SOLUBLE FACTORS IN NUTRITION. With list of 34 references. By Ruth Woods. Borden's Review of Nutrition Research. Oct. 1949.

Margarine in Canada

Although Canadians have been making and eating margarine only a year, they are already consuming more per capita than the U. S., according to Francis A. Flood, agricultural attache at the American Embassy, Ottawa.

Margarine has been manufactured in Canada since the Canadian supreme court ruled the law prohibiting its manufacture and sale invalid. However, the law against its importation still stands.

Manufacturers have been turning out margarine at the rate of 81 million pounds a year. This means a per capita consumption of 8.5 pounds on the basis of the 9.5 million people to whom margarine is available, and compares with 5.7 pounds per capita in the U. S. in 1949.

During the first 9 months of 1949 when margarine consumption in Canada was rising, butter consumption went down.

Of the 5.7 million pounds of oils used by Canadian margarine makers in August, 60.5 percent was cottonseed oil and 23.1 percent was soybean oil. The remaining was coconut oil, peanut oil, marine oils, palm oil and oleos. Thus, except for a small quantity of marine oils used by one margarine maker in Newfoundland, all the raw materials used in this new Canadian in-

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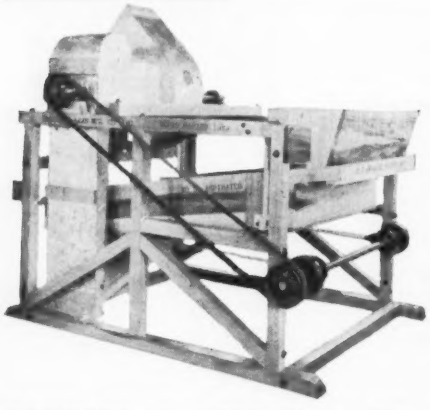

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dustry are imported, mostly from the U. S.

MARGARINE IN CANADA. By Francis A. Flood. Foreign Agriculture, Dec. 1949. Office of Foreign Agricultural Relations, Washington 25, D. C.

Australia

Soybean trials have been carried on at different times in Tasmania (Australia) since 1939. But the crop has proved to be uncertain, at least for the varieties tried.

Climate is dry and summer temperatures average low compared with main soybean producing countries. However, some varieties have turned out high yields. Lincoln, for instance, has produced up to 41 bushels per acre.

Other countries with climates similar to Tasmania are engaged in vigorous breeding and selection work on soybeans, and Tasmanians are hopeful they may develop more suitable varieties.

Until these appear, soybeans will not compete well with higher producing crops such as blue and gray peas.

SOYBEAN TRIALS IN TASMANIA. By J. Tilt, agronomist. Tasmanian Journal of Agriculture. Aug. 1, 1949.

Soy Flour in Bread

Soy flour supplements the proteins of bread made from flour of 85 percent extraction alone or with 6 percent nonfat milk solids. On the other hand milk proteins are found to have no supplementary effect on bread proteins.

Bread made with 5.56 percent full-fat soy flour has higher biological value than that made from only the 85-percent extraction flour, 6 percent milk solids or with 3 percent milk solids plus 2.78 percent soy flour.

EFFECT ON THE BIOLOGICAL VALUE OF BREAD NITROGEN BY ADDITIONS OF DRIED SKIM MILK AND OF SOYBEAN FLOUR. K. M. Henry and S. K. Kon. Journal of Dairy Research. 16, 53-7. 1949.

In Bee Feeding

Soy flour is used as an ingredient for preparing pollen substitutes or pollen supplements for feeding colonies of bees when they lack enough pollen—the main source of protein, lipids, minerals and vitamins in the nutrition of bees.

Brood can be reared with soy flour fed alone, but the amount is considerably below that reared when dried skim milk or dried brewers' yeast is added to the soy flour.

Soy flour is an excellent source of protein of a high biological value and its mineral and fat contents are as high as required.

Niacin probably is the main limiting factor in soy flour as a bee feed. The amount of riboflavin is also inadequate. An addition of riboflavin to the niacin-fortified diet increased the nutritive value of the food.

There seem to be some other factors in which soy flour is deficient and which are supplied by dried brewers' yeast.

CAUSES OF DEFICIENCY OF SOYBEAN FLOUR AS A POLLEN SUBSTITUTE FOR BEES. By M. H. Haydak, University of Minnesota. Journal of Economic Entomology. Aug. 1949.

Ground Soybeans

Ground soybeans when fed to dairy cattle with alfalfa hay do not increase milk production as compared with a soybean oil meal supplement. But they do produce a significant increase in percentage of butterfat in the milk.

Feeding as much as 10 pounds per day of ground soybeans or soybean oil meal with alfalfa hay caused no digestive disturbances and the palatability of the ration was not reduced.

Milk and butterfat production was higher when the soybeans or meal were added to the alfalfa than was expected on alfalfa hay alone.

COMPARATIVE VALUE OF HIGH AND LOW-FAT CONCENTRATES WITH ALFALFA HAY. By J. H. Byers, I. R. Jones and J. R. Haag. Journal of Dairy Science, 32, 596-603. 1949.

Vitamin B_{12}

Soybean oil meal is listed among the feeds deficient in vitamin B_{12} as contrasted with animal feeds and some others that do possess vitamin B_{12}. Journal of the American Dietetic Association, Chicago, Ill. Nov. 1949.

ROLE AND SOURCES OF VITAMIN B_{12}. By A. M. Hartman, L. P. Dryden and C. A. Cary, division of nutrition and physiology, Bureau of Dairy Industry, U. S. Department of Agriculture, Beltsville, Md.

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GRITS and FLAKES... FROM THE WORLD OF SOY

Pillsbury Mills, Inc., is considering a substantial expansion of its Buffalo milling and elevator properties, President Philip W. Pillsbury reported recently.

* * * *

H. L. Forbis Co., Detroit, has been appointed sales representative for the chemical division of General Mills, Inc., for the state of Michigan. S. S. Skelton Co., Cleveland will represent the company for northeast Ohio.

* * * *

Fred A. Kummerow, associate professor of chemistry at Kansas State College, has received a $3,000 grant to do research work on fatty acids from the Federal Security Agency. Specific project is "Metabolism of Unsaturated Fatty Acids in Fat Deficient Rats During Pregnancy."

* * * *

G. R. Dougherty, Milwaukee representative for Ralston Purina Co., St. Louis, Mo., has been named Chicago district sales manager.

* * * *

James E. Donahue is the new manager at Memphis for Ralston Purina Co. He succeeds R. L. Henry who was transferred to Atlanta.

* * * *

J. H. Bryant has been recently appointed manager of the Tampa, Fla., district of Phillips Chemical Co's. fertilizer sales division. Bryant was recently associated with the chemical department of the Quaker Oats Co.

* * * *

The following recently took office with the Chicago Board of Trade: President, Carl E. Bostrom, vice president and director of Lowell Hoit & Co.; first vice president, Sylvester J. Meyers, vice president of Arcady Farms Milling Co.; second vice president, Earle M. Combs, Jr., of E. M. Combs & Son.

* * * *

A new railroad car unloader has been completed at the Swift & Co. Oil Mill, Blytheville, Ark., to be used for filling three new storage tanks with soybeans.

* * * *

Fulton Bag & Cotton Mills announces the appointment of Thomas J. Tupper, Jr. to the sales force with headquarters in Kansas City, Mo. Tupper will devote his major efforts to the sale of Multiwal bags in the Midwestern area.

* * * *

Cotton dresses made from "Bemilin" cotton bag cloth will win $1,390 in cash and U. S. savings bonds for employees of Bemis Bro. Bag Co. and members of their families. Bemilin is the trade name for printed cotton cloth manufactured by the company.

PRODUCES SOY PROTEIN

J. K. GUNTHER

Gunther Products, Inc., 600 E. Main St., Galesburg, Ill., was organized in 1949 to produce vegetable proteins and defatted soy flakes. The firm is already in full production of soy albumen, it reports.

The corporation is headed by Dr. J. Kenneth Gunther, who is well known in the soybean industry. He was research director for Central Soya Co., Inc., Fort Wayne, Ind., for a number of years. He also has served as chairman of the Soya Food Research Council of the Soy Flour Association.

Gunther and his associates developed the soy albumen at the Central Soya laboratories. It is a purified protein derivative utilized chiefly in both the confectionery and baking industries as a whipping aid.

The manufacturing process is under license agreement with Central Soya Co.

327 So. La Salle St., Chicago 4, Ill. Phone: Harrison 7-5244

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Yes . . . you can reduce your soybean storage costs with BS&B Bolted Steel Grain Tanks. Cost per bushel is lower by far than concrete. Many owners report more than 25 years' service with upkeep amounting to only a coat of paint now and then. Steel storage earns cheapest insurance rates, too. With your own storage you can maintain a reserve to avoid plant or mill shutdowns.

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Capacity ranges from 10,000 to 50,000 bushels. You can tailor your storage to your needs. Act today . . . mail the coupon above for full details!

BS&B bolted steel grain tanks

Black Sivalls and Bryson, Inc., 720 Delaware, Kansas City, Mo., has recently released a sound film, "Grain Dollars and Bin Sense," produced by their own movie department. The movie is planned to bring about a better understanding between dealer and customer. Film is available to BS&B dealers, salesmen and branch personnel and anyone interested in showing the film.

* * * *

Announcement is made in the January 1950 issue of the Journal of the American Oil Chemists' Society of the 1950 schedule of meetings for the society. Also announced is the 1950 short course, which will be held on the subject of drying oils, early in August at the University of Minnesota.

* * * *

A new six-page bulletin, No. 9149, describing in detail the automatic bulk grain receiving scale, has just been issued by the Richardson Scale Co., Clifton, N. J.

* * * *

E. F. Hutton & Co., 61 Broadway, New York 6, N. Y., has recently published a concise, informative brochure on commodity futures trading, dealing primarily with fundamentals and technicalities. Written by Matthew A. Anderson, manager of the firm's commodities department, it outlines in easy-to-read simplified form the origin, purpose and use of futures contract trading.

* * * *

A. E. Staley Mfg. Co., Decatur, Ill., now has its own radio communication system between maintenance headquarters and the cabs of its mobile cranes, trucks, fork tractors, trash handling equipment and the units which carry both materials and personnel to repair jobs in all parts of the plant.

* * * *

Dr. Julius Hendel, vice president in charge of marketing for Cargill, Inc., Minneapolis, related to the Chicago Rotary club recently, his observations and impressions on the export situation after visiting several foreign countries and attending the International Congress of Oilseed Crushers in Switzerland last summer.

* * * *

Officials of Buckeye Cotton Oil Co. recently announced plans for erecting a solvent extraction unit at their Augusta, Ga. mill.

* * * *

The retirement of L. P. Littell from the Salt Lake City sales office of Bemis Bro. Bag Co. became effective Jan. 1. Littell had served Bemis for over 40 years. He joined the company at its Omaha plant in 1909.

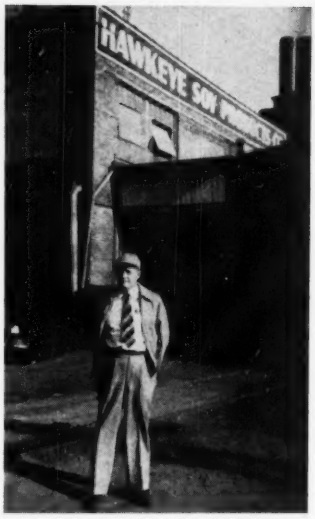
* * * *

Tipps Engineering and Supply Co., Memphis, Tenn., is constructing a new concrete and steel shop building of more than 10,000 square feet equipped with electric tramrail, overhead conveying system for the fabrication of sheet metal and light structural steel. It will have the latest machinery for cutting, forming and assembling soybean mill equipment. J. F. Tipps is the owner.

* * * *

Robert A. Swanson has been appointed manager of the feed, oil and soybean sales department of Clinton Foods, Inc., Clinton, Iowa. John H. Wilson was promoted to assistant manager of the department.

IOWA PROCESSOR



Harry G. McKee, soybean buyer for Hawkeye Soy Products Co., in background. Plant, a former button factory, fronts on the Mississippi River at Muscatine, Iowa. Firm operates two screw presses and has a storage capacity of 200,000 bushels, producing "Hawkeye" soybean oil meal, also used as an ingredient in the feeds of McKee Feed & Grain Co. Both operations are headed by Harry's father, L. R. McKee. C. R. McKee is plant manager.

— s b d —

J. C. KINTZ PASSES

Jake Kintz, well known distributor of grain handling equipment, died Jan. 18 at Cedar Rapids, Iowa.

He had a wide acquaintenance with grain and feed men from the Rocky Mountains, the Gulf of Mexico and the East, having been for years identified with the elevator and feed mill equipment and supply industry. For years he headed his own firm of J. C. Kintz Co., of Cedar Rapids.

In his youth he was associated with the Jas. Stewart Corp., design-

USED OIL MILL EQUIPMENT

one part or complete plant

Expellers all sizes and makes. Various size Filter Presses. Hydraulic Cake Presses. Hot and cold Cake Cutters. Seed Cleaning Equipment. Flaking rolls 36 to 60".

Stack cookers or toasters from one high to six high—56-72-85" diameter. Attrition mills. Hydraulic pumps. Accumulators. Conveyors. Boilers. Engines. Motors.

Let Us Know Your Needs.
If it is used in the oil mill we have it.

V. A. LESSOR & COMPANY

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CABLE ADDRESS—VALCO
FORT WORTH, TEXAS

KALO

INOCULATION

for SOYBEANS

Made only from strains of bacteria proven to fix more nitrogen

Also Patented UNICULTURE for Clovers and Alfalfa
3 Cultures in One Can

KALO INOCULANT CO., QUINCY, ILL.

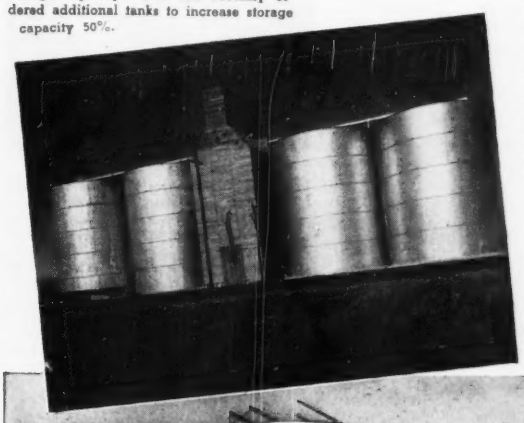
COLUMBIAN

BOLTED STEEL GRAIN STORAGE TANKS

Most Economical Storage You Can Buy!

You realize increased daily profits from COLUMBIAN Bolted Steel Grain Storage Tanks from the first day of installation. They require minimum initial investment—and minimum overhead and maintenance. Of bolted sectional construction, they give you the additional economy of low erection cost. How long they'll last, no one knows—none have ever worn out. Not one has been demolished by tornado or cyclone.

(Below) The 4 tanks below have 104,000 bu. storage capacity. This firm recently ordered additional tanks to increase storage capacity 50%.



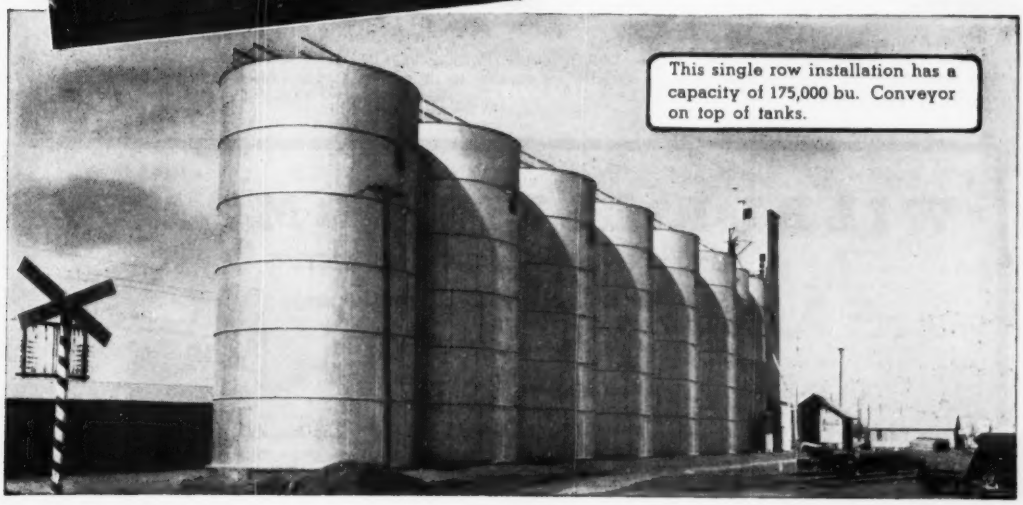
COLUMBIAN Bolted Steel Grain Storage Tanks are FIRE-PROOF . . . WEATHER-PROOF . . . RODENT-PROOF. They never crack or crumble . . . no caulking or patching is required. Actual service tests as long as 25 years prove them ideal for safe, efficient storage and handling of all small grains—wheat, corn, oats, barley, soya beans, flax, cotton seeds, peanuts, rice, coffee beans, etc. Hundreds are now in use by all kinds of feed processors.

After over a quarter of a century of manufacturing COLUMBIAN Bolted Steel Grain Storage Tanks, they continue to prove superior because of Columbian's exclusive and important details of design. Even after 25 years of service some users have added rings to increase storage capacity.

FREE Engineering Service — All preliminary engineering service for designing tanks to meet your particular need and arrangement is provided free. Detailed, easy-to-understand blue prints for foundation and erection are furnished so that tanks may be put up with any kind of labor.

COLUMBIAN STEEL TANK CO.
P. O. Box B-4226, Kansas City, Mo.

Write for free literature picturing and telling about these famous tanks. Send us your specifications including capacity required, arrangement of tanks, etc., for complete estimate WRITE NOW.



This single row installation has a capacity of 175,000 bu. Conveyor on top of tanks.

"Joyva," sesame-seed candy made in part of soy protein, manufactured by Halvah & Candies, Inc., Brooklyn, N. Y., was kidded in an article in Dec. 30 issue of Tide.

* * * *

White W. McCotter, assistant treasurer, suffered bullet wounds and John Weskett, president and treasurer, knife wounds about the face when two negroes recently attempted a holdup of the office of the New Bern Cotton Oil & Fertilizer Co., New Bern, N. C. The holdup men escaped without taking any money and police have meager clues as to their identity.

* * * *

Picture of K. S. Adams, president of Phillips Petroleum Co., appeared on front cover of the Dec. 31 issue of Business Week with story inside on Phillips' adventures in chemistry.

* * * *

William R. Alban of Oak Hill, Ohio, has become associated with the J. W. Hance Manufacturing Co., Westerville, Ohio, as development engineer. He was formerly with Buckeye Furnace Pipe Co., Curtis-Wright Corp. and Phillips Petroleum Products.

* * * *

Link-Belt Co., Chicago, announces the opening of a factory branch store and warehouse at 2630 Holmes St., Kansas City, Mo.

* * * *

Story of the 90-year growth of Bemis Bro. Bag Co. appeared in a recent issue of Textile Age. The firm had reprints made of the comprehensive history in pocket-size form.

* * * *

The annual meeting of North Carolina Crop Improvement Association, Inc., was held January 26 and 27 at North Carolina State College, Raleigh, N. C. A seed exposition, F.F.A. crops contest and 4-H corn speaking contest were held in connection with the meeting.

* * * *

The Archer-Daniels-Midland Co. research laboratory annual hunter's banquet was held in Minneapolis recently. Some 60 hungry hunters enjoyed a dinner of venison, pheasant and duck. Myron Carpenter, Ed Clocker and Cliff Norman were in charge of arrangements.

* * * *

A. E. Staley Mfg. Co., Decatur, Ill., has announced the production of "Hi-Pro-Con," a new 50 percent protein concentrate.

* * * *

E. F. Drew & Co., New York City has announced the appointment of Ralph A. Ellsworth as representative in Iowa, Nebraska and Colorado. He was formerly associated with the Howe Scale Co. and the Farm Crops Processing Corp.

* * * *

The 17th international edition of The Cotton Trade Journal has just been published. It contains 214 pages of articles on exports to or imports from 33 foreign countries.

ers and builders of grain elevators and heavy structures. During World War I he served in the Engineering Corps.

He is survived by his widow, Jessie B. Kintz, who is well known to the industry.

Interment was at Minneapolis, Minn., Jan. 21.

HEADS TRADE GROUP

Edward J. Grimes, vice president of Cargill, Inc., Minneapolis, Minn., was elected chairman of the foreign trade policy advisory committee for the U. S. Department of Agriculture at its first meeting in Washington, D. C. Jan. 5. Representatives of farm organizations, land-grant colleges, the agricultural press and agricultural industry are members of the committee, which was created under the Research and Marketing Act to advise USDA in the field of foreign agricultural trade.

— s b d —

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Seedburo is the symbol of quality and service to seedsmen the country over. Since 1912 improvement in seed testing, cleaning, grading, mixing, germinating, and handling procedures has been a Seedburo objective. All equipment is fully tested and guaranteed . . . meets rigid Seedburo standards of quality and performance.

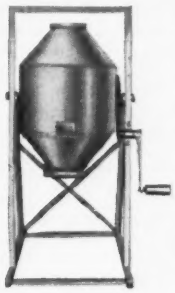
Seedburo's 38 years of specialization and experience in the seed trade are at your disposal. Our trained staff is prepared to give you prompt assistance in the solution of any of the above problems you may have, or explain the exact application of Seedburo equipment and how it can help you realize greater profits.

New Free Catalog Contains complete descriptions and illustrations of more than 500 items for the seed and grain trade. If you do not have a copy, send for it today.

SEEDBURO
EQUIPMENT COMPANY

729 Converse Building
Chicago 6, Illinois

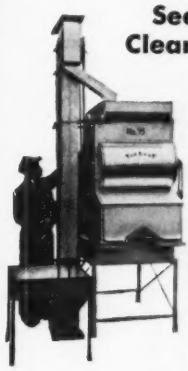
MacLellan Batch Seed Mixer



Ideal for mixing all kinds of seed in any quantity, from 5 pounds to a ton. Can also be used for treating and inoculating seeds. Mixes 10 to 15 batches per hour. Twelve complete separations and mixes for every revolution of the drum.

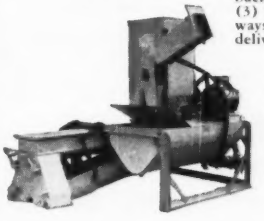
There are no moving parts in the drum. Mixers through the 4-cubic-foot size can be operated by hand. Price range from **$28.75** and up. Write for full information on sizes and prices.

VAC-A-WAY Seed and Grain Cleaner and Grader



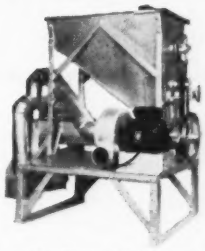
Designed for the requirements of custom cleaners, elevators, seed stores, Farm Bureaus and for use on large farms. Cleans and grades 60 to 75 bushels of large grain or 10 to 25 bushels of small seed per hour. Twenty screens constitute the standard set for cleaning and grading oats, soybeans, wheat, lespedeza, millet, unhulled clover, timothy and alfalfa. You can select the set that meets your requirements. No. 75 model, including cleaner, stand, screens, elevator and hopper . . . **$311.00.**

Calkins Slurry Treater



Here's a slurry treater with seven exclusive advantages; (1) Weighing pan is freed from elevating slurry in buckets . . . weighs seed with scientific accuracy. (2) Special pump, with bearings above slurry level, delivers slurry to metering bucket. No priming, no leaking. (3) Singular metering bucket always fills, always dumps, always delivers the same amount. Instant change from 23 to 46 c.c. (4) Weir distributes slurry over each charge of seed. (5) Removable screen. (6) Slurry agitator shaft driven from above. (7) Instant clean-out of treating chamber. Calkins standard treater . . . **$595.00.** Special model for treating cotton seed . . . **$630.00.**

Gustafson Powder Treater



Treats seed with any brand of dry chemical powder. Amount of powder fed is visible and can be accurately regulated by calibrated control. A long mixing chamber and special agitator assure thorough coating of every kernel. Speed of operation easily regulated. Mixing operation is entirely enclosed. Suction fan draws off all loose powder. Model H, with capacity of 50 to 500 bushels per hour, plus motor, fan and two-way bagger and stand . . . **$295.00.** Model K, up to 800 bushels per hour, plus fan, motor and bagger . . . **$375.00.**

WASHINGTON Digest

1950 CROP. A 1950 soybean crop of 270 to 300 million bushels is what USDA officials are estimating, granting reasonably good weather during the growing season. An increase of 50 to 80 million bushels above last year's 222 million bushels is predicted.

With no acreage allotments, Department officials expect 4 million acres to be diverted from corn to beans, and one million acres to be added from old cotton land. The increase in bean acreage will come on good land—not marginal. Total 1950 planted acreage is expected to run 14 to 15 million acres. This compares with 9,912,000 acres harvested in 1949.

(See page 33 for USDA announcement on controls.—Editor.)

Price support for the 1950 crop probably will be 25c to 35c a bushel lower than the 1949 loan rate. Talk is of nothing more than 75 percent of parity, and perhaps a little less. Parity for beans next summer is estimated at around $2.46 a bushel, national farm average.

Some of the old USDA hands are blue at Secretary Brannan's decision not to have bean allotments. They think it's almost sure to bring surplus trouble this fall, what with fats and oils exports due to drop off with the cut in ECA funds. They thought it better to head off a surplus by use of acreage restrictions.

In their disappointment at the decision, they may be over-estimating the crop. Some of the foreign market men think they may also be under-estimating exports. The cut in ECA funds will reduce the booming exports in beans and lard, all right, but perhaps not as sharply as some think. It's argued that European demand is very real, and that U. S. fats and oil prices are still the lowest in the world—even after foreign currency devaluation.

Of course, it's all pure speculation now. No one can dope out the foreign market for a certainty. Nor what moves involving farm exports may be made on the international chess board between now and fall. And all the scientists of the Weather Bureau can't predict what the growing season may prove to be.

But figuring averages, there should be a second straight year of record-breaking total fats and oils production in this country. The probable increase in soybean and lard production for the marketing year starting next October won't be offset by the decrease in the 1950 cottonseed crop. The decrease in cottonseed is expected to be 400 to 500 million pounds of oil.

Secretary Brannan's decision to have no bean allotments is a key move that gives the tip-off on his present farm price support policy. It's to keep crop controls, support prices, and cost to the government as low as possible while operating under the present farm law.

By side-stepping bean allotments, Brannan counters—for the time being, at least—the charge of his critics that he's ambitious to regiment agriculture. Politically that may be important in an election year which he hopes will pave the way for the Brannan plan.

Another point many have overlooked is that the law does not permit the Secretary of Agriculture to proclaim acreage allotments for a "basic" crop before surpluses have developed. In other words, the law lets him declare bean allotments under conditions that wouldn't let him do the same for corn, wheat or cotton.

By PORTER M. HEDGE

Washington Correspondent for The Soybean Digest

Even the most optimistic men in USDA think a crop one-third larger than last year's will be a major price factor in the whole fats and oils situation next fall. Total domestic output of all fats and oils for the current year ending next Sept. 30 is estimated by USDA at slightly over 12 billion pounds. It was about 11¾ billion last year.

The breakdown of this year's 12 billion pounds, all in oil equivalent, shows a soybean estimate of 1,950 million pounds, compared to 2,031 million last year; cottonseed oil 1,725 million compared to 1,733 million last year, and lard 2,750 million pounds compared to 2,526 million pounds last year.

Lard exports are expected to be a little larger the year ending this September than the large figure of 601 million pounds of last year. Lard supply estimates have been scaled down a little because of lighter weight hogs marketed. Domestic consumption is estimated to go back to the 1948 rate of 2,077 million pounds. Lard stocks are relatively low. It adds up to a good imme-

CONVEYING-ELEVATING AND TRANSMISSION MACHINERY

Large stocks carried in our warehouse for prompt shipment.

Our Engineering Department at your service at no extra cost.

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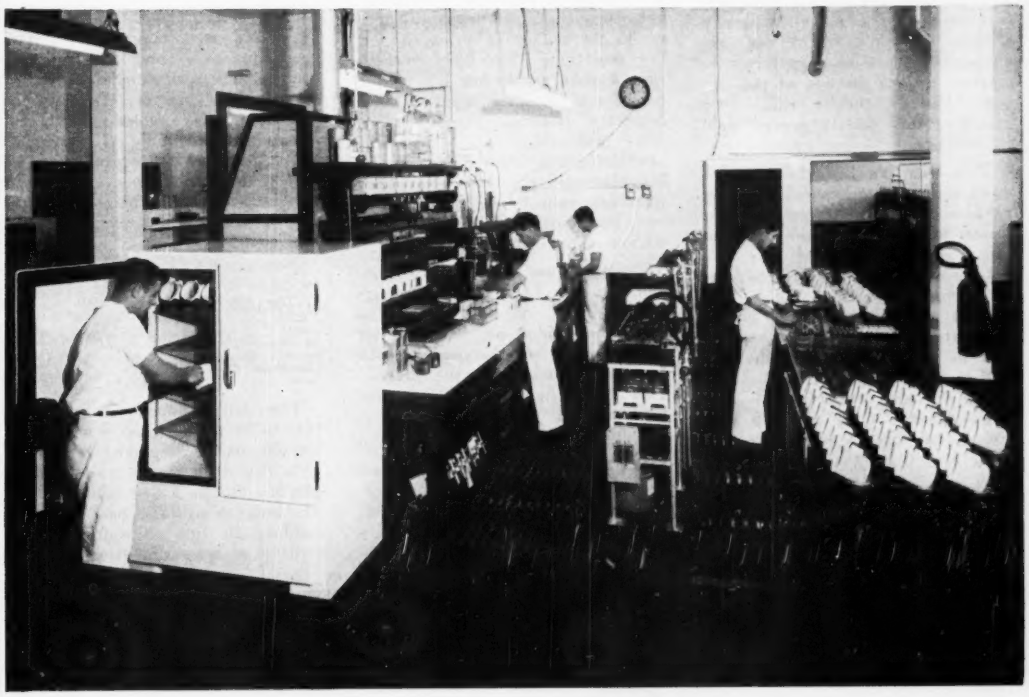
Serving The Soybean Industry



The Oil Refining Department at Woodson-Tenent Laboratories, Memphis, Tenn., has a capacity of 150 refinings a day. The special refrigerator is for cooling oils.

Official Chemists National Soybean Processors Assn.

SOYBEAN OILS - CAKE - MEALS

ALL AGRICULTURAL PRODUCTS

Referee Chemists American Oil Chemists Society

WOODSON-TENENT LABORATORIES

MEMPHIS, TENN.

Analytical Chemists

Laboratories: Memphis, Tenn.; Blytheville, Ark.; Little Rock, Ark.; Cairo, Ill.; Des Moines, Iowa.

"OVER 800 MILLION DOLLARS WORTH OF PRODUCTS ANALYZED SINCE 1935"

diate prospect for lard prices, and no depressing effects on hog prices for six months.

PRICE PROSPECT. The price prospect for soybeans is also good until harvest. USDA market men are sure the market price will beat support, and that it will pay farmers to hold. USDA men are always bullish on soybean prices increasing toward the end of the season. Usually they're right—even last year they finally proved right by summer.

This year it's like shooting fish down a rain barrel to call the shot on bean prices strengthening as the season wears on. The January stocks report of USDA showed only 27.8 percent of the 1949 bean crop to be on farms Jan. 1 compared to 33.7 percent the year before. Economists are confident general business will be good for at least the first half of 1950. Bean exports are staying high, and probably will until mid-summer. It all adds up to a strong bean market for at least another 5 or 6 months.

The repeal of Federal margarine taxes won't hurt soybean prices, either. USDA market men think colored margarine will drop about a dime a pound as a result. With present price support differentials, they look for demand for vegetable oils to increase.

BRANNAN PLAN. Congress seems to be in an economy mood. It's also more than usually consumer-conscious. This probably adds up to no change in price support law this year. The Brannan plan isn't a dead issue, but it's getting nowhere in Congress now. Unless Secretary Brannan supplies them more ammunition, few Democratic candidates are likely to champion his plan strongly this fall. They want firm estimates of the probable cost, and some way of financing it without annual appropriations.

The feud between Secretary Brannan and the Farm Bureau leadership headed by President Allan Kline, and aided by Senator Clint Anderson of New Mexico, has the Secretary stymied for the present. This bitter fight overshadows the farm political situation in Washington this winter.

BUTTER, OLEO. Butter markets are expected to react unfavorably for a year or more. Much of it will be psychological. The dairy industry, jittery and lacking confidence in the dairy price future for the last year anyway, is expected to overplay the oleo tax factor. USDA men think butter prices will bear down heavily on the 60c a pound support for a year. That means, roughly, an average of $3 a hundred to farmers for milk sold creameries.

USDA's latest report shows butter production only about two-thirds of prewar, and prices slightly more than double. Margarine production has more than doubled, but prices have increased only 75 percent above prewar. Butter production is now at the rate of about 1,210 million pounds a year; margarine production last year was about 835 million pounds.

Here are BAE's estimates of price increases in 1949 over the averages of 1935-39:

Butter	107	percent increase
Margarine	75	" "
Soybean oil	62	" "
Cottonseed oil	53	" "
Lard	18	" "

The dairy industry is reported here to be readying up a huge butter advertising campaign. A levy of 1c a pound on butter production is planned to give a $10 million fund. The industry will also bear down on holding the line on state laws restrictive of margarine sales.

NO *waste* --- **NO** *loss*

NO *measuring*

Inoculation of soybean seed becomes easy, sure and effective when you use this non-sticky humus base inoculant. It coats the seeds visibly, thoroughly and quickly—yet never gums the planting machine. And in addition, you gain both speed and economy as well.

LEGUME-AID

The famous inner lined carton package protects the potency of the nitrogen fixing bacteria and holds exactly enough inoculant to treat five bushels of soybeans. Order what you need. Open each package fresh as you treat each batch of seed. No waste, no loss, no measuring. No inoculant does more for soybeans than LEGUME AID. Tell your dealer you want it.

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1322 Chesapeake Ave. Columbus 2, Ohio

The INOCULANT in the CARTON

USED BAGS

COMPLETELY RECONDITIONED

AT LOWEST PRICES

Complete assortments of reconditioned used and surplus bags ready for prompt shipment.

Processed and reconditioned in the foremost modern plant in the Mid-West. Each bag is vacuum cleaned, sorted, graded, mended and inspected before baling ready for shipment.

We have the type and size of bag that you want and can supply you immediately.

Bag printing in colors. Your own label or we submit sketches and ideas.

FOR PROMPT SERVICE WRITE — WIRE OR TELEPHONE COLLECT 2-8355

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--- MARKET STREET ---

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here. Rate: 5c per word per issue. Minimum insertion $1.00.

FOR SALE—OIL MILL EQUIPMENT. Anderson Expellers, French Screw Presses all models, as is or rebuilt for specific materials. Pittock and Associates, Glen Riddle, Penna.

FOR SALE—Brand new O.K. Bagging scale, unused, in original crate. Equipped for feed or seed bag filling and weighing. Today's list $295. Will sell unit for $200 f. o. b. Lynk Bros. & Baird, Marshalltown, Ia.

FOR SALE OR LEASE—Soybean plant, with wonderful money making record, 25,000 feet bag storage, and 75,000 bushel overhead bin storage, track scale, sprinkler system, etc. Would also make ideal feed plant. Write Louisville Seed Company, Louisville 2, Kentucky.

FOR SALE—1000 bu. Hawkeye seed beans, grown in Mower County, Minnesota, from certified seed. $3.00 per bu. in 20 bu. lots. Martin Bustad, Austin, Minn.

SEED DIRECTORY

A charge of $2 will be made to subscribers for listing in the March and April issues. Quantity for sale and variety are included.

ARKANSAS

Burdette—Hale Seed Farms, 2,000 bu. certified Hale Ogden 2.

Stuttgart—Jacob Hartz Seed Co., Inc., P.O. Box 109, Red Tanner, O-Too-Tan, Brown Biloxi, Mamloxi, Volstate.

Stuttgart—E. B. Swindler, Box 627.

ILLINOIS

Bloomington—Funk Bros. Seed Co., certified Hawkeye, Lincoln, Wabash.

Blue Island—Irvin Holl, 1665 Broadway, 450 bu. non-certified Hawkeye.

Cantrall—J. Harold Canterbury, 1,500 bu. certified Hawkeye, 800 bu. certified Lincoln, 2,000 bu. certified Wabash.

Capron—John W. Sjostrom, Rt. 1, 1,000 bu. certified Hawkeye.

Carthage—Junior Dittmer, 1,000 bu. certified Wabash, 300 bu. certified Hawkeye, 300 bu. certified Lincoln from hand selected seed.

Charleston—Dale C. White, Rt. 2, 400 bu. certified Wabash. Will deliver.

Fairmount — Trisler Seed Farms, truck or carload lots of certified Wabash, Lincoln, Hawkeye.

Kansas—Harvey L. Washburn, 1,000 bu. certified Wabash.

Manhattan—Earl Keniston, Route 1, 500 bu. certified Hawkeye.

Orland Park—James Tilsy, 167 St. & 118 Ave., 1,800 bu. certified Hawkeye.

Pontiac—Pike Hybrid Corn Co., carload and truck lots, certified Hawkeye, Lincoln, Wabash, carload and truck lots, non-certified Bavenger.

Roseville—Knox College Farms, Samuel E. LaGrow, Box 384, 1,400 bu. certified Hawkeye, 600 bu. certified Lincoln.

San Jose—Kelly Seed Co., 15,000 bu. non-certified Lincoln, 8,000 bu. non-certified Hawkeye, 5,000 bu. certified Hawkeye.

Ursa—Frank W. Lewis, blue tag certified soybean seed, 2,800 bu. Hawkeye, 2,300 bu. Wabash, 2,650 bu. Lincoln.

Woodstock—Pell-Bari Farms, Inc., 305 Clay St., 20,000 bu. certified Hawkeye.

INDIANA

Anderson—Roy Scott, Rt. 5, 1,000 bu. certified Hawkeye, 500 bu. certified Lincoln.

Cedar Lake—Frank De Vries, 2,000 bu. certified Hawkeye.

Chandler—Bernard V. Wagner, Rt. 2, 3,000 bu. certified Wabash.

Remington—Chester B. Biddle, 1,200 bu. certified Hawkeye.

Remington—Silver Lane Farms, 2,500 bu. certified Lincoln, 5,000 bu. certified Hawkeye, 1,500 bu. certified Earlyana, 350 bu. certified Mandarin-Ottawa.

Valparaiso—Wyckoff Hybrid Corn Co., Rt. 3, 1,200 bu. certified Earlyana, 1,300 bu. certified Richland, 3,200 bu. certified Hawkeye.

Windfall—Byron Legg & Sons, Rt. 2, 400 bu. certified Hawkeye, 300 bu. certified Lincoln.

Worthington—H. H. Sloan & Sons, 2,500 bu. certified Wabash, 1,000 bu. certified Hawkeye.

IOWA

Galva—L. J. Baxter, 1,800 bu. Iowa blue tag certified Hawkeye.

Hudson—Strayer Seed Farms, 1,000 bu. Bansei.

Iowa Falls—Leonard E. Hoffman, Rt. 1, 1,000 bu. certified Hawkeye.

Remsen—Frank Lenertz, 700 bu. certified Hawkeye, germination 95%, purity 99.61.

Sabula—Behan & Helfert, Rt. 1, 400 bu. certified Lincoln.

KANSAS

Carbondale—Lowell Chamberlin, 500 bu. certified Wabash.

MINNESOTA

Austin — Martin Bustad, 1,000 bu. Hawkeye from certified seed.

Bricelyn—Russell M. Sime, 400 bu. blue tag certified Hawkeye, germination over 90%.

Montevideo—John W. Evans, 300 bu. non-certified Capital, 150 bu. certified Ottawa-Mandarin, 500 bu. non-certified Ottawa-Mandarin.

Sleepy Eye—Henry Leitschuh, 350 bu. uncertified Korean.

Winona—Seed Growers, Inc., 1,500 bu. certified Ottawa-Mandarin.

MISSOURI

Malden—T. F. Baker, 1,400 bu. certified S-100, 1,600 bu. certified Ogden.

St. Louis—Cypress Land Farms Co., 314 Merchants Exchange, 400 bu. certified S-100, 400 bu. non-certified S-100, 400 bu. certified Ogden, 400 bu. non-certified Palsoy, 500 bu. certified Wabash, 400 bu. certified Hawkeye, 1,000 bu. non-certified Lincoln.

NEBRASKA

Elk City—Wahlgren Seed Farms, 900 bu. certified Hawkeye.

NORTH CAROLINA

Raleigh—H. W. Davis, Hunter St., 450 bu. certified Roanoke.

OHIO

Ada—J. R. Spar & Son, Rt. 1, 1,000 bu. certified Hawkeye, 500 bu. certified Monroe.

Avery—J. Schlessman & Sons, 300 bu. certified Monroe, 1,000 bu. certified Hawkeye, 500 bu. certified Lincoln, 1,000 bu. non-certified Hawkeye, 1,000 bu. non-certified Lincoln.

Bowling Green—Henry C. Swartz, Rt. 2, 215 bu. certified Monroe.

Delphos—Lawrence W. Adam, Rt. 1, 225 bu. Ohio certified Monroe.

Springfield—Martin Gainer, Rt. 3, 400 bu. certified Hawkeye, 175 bu. certified Monroe, 100 bu. certified Lincoln.

CANADA

Muirkirk—Geo. E. Phillips, Rt. 2, Muirkirk, Ontario, 1,500 bu. registered No. 1 Canadian Capital.

SOLVENT EXTRACTION PLANTS

FUNCTIONAL
PROCESS
DESIGN
CONSTRUCTION

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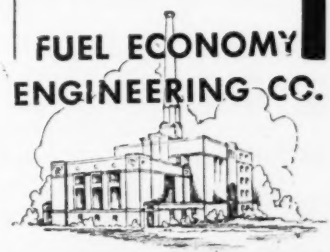

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In The MARKETS

MEAL MARKET WEEK

Weakness in the soybean oil meal market was the big feature of January. Lack of demand slowed down production of meal and was said to have made for lighter trading in soybean oil, since processors were finding it difficult to make a profit on their total operation at the going prices for meal and oil.

A number of mills were said to have shut down during the month.

Passage of the margarine law repeal bill by the U. S. Senate did not have an immediate stimulating effect on soybean markets, probably because the step was not unexpected and because it does not become effective until July, if it becomes law.

Soybean futures held to a fairly even keel for the month. There was little activity in the cash market. Beans were being held back, with not enough being received at times to make a market.

The government was in the soybean oil market the first and the fourth weeks of January, but was out during the middle of the month. Purchases by Commodity Credit Corporation for Dec. 26-30 were reported at 5 million pounds; and for Jan. 3-6 at 3.1 million pounds.

During the latter part of the month CCC entered the market at 10½c for late February and March shipment.

There were reports that the U. S. Army was seeking 4.4 million pounds of soy flour for export.

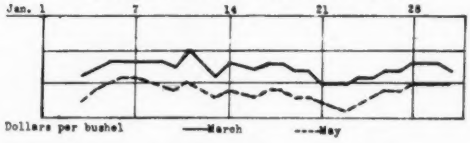
The market report committee of the Chicago Board of Trade authorized futures trading in Jan. 1951 soybeans starting Feb. 1.

March No. 2 soybeans, Chicago, opened at $2.30 and closed at $2.30. High for the month was $2.35 Jan. 12. Low was $2.31 Jan. 13.

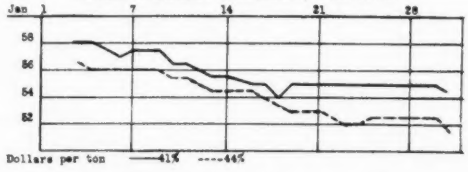
There was a spread of from $2 to $4 between 41% and 44% bulk soybean oil meal during the month, with 44% showing the most weakness.

Bulk 41% soybean oil meal, basis Decatur, opened at $58, the high and closed at $54.50. Low was $54 Jan. 18. 44% closed at $52.

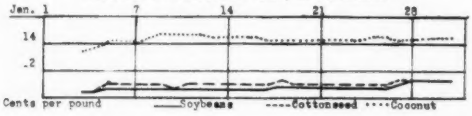
FUTURES CHICAGO NO. 2 SOYBEANS



BULK SOYBEAN OIL MEAL, DECATUR



CRUDE VEGETABLE OIL, TANKCARS



The lower price trend during January increased talk of export business in oilseed meals.

Crude soybean oil in tankcars opened for the month at 10½c and closed at 11¼c. Trading was light. Demand was not heavy but mills were not pushing their product.

MEMPHIS SOYBEAN OIL MEAL FUTURES CLOSINGS JAN. 31*
Decatur sacked basis, per ton: Mar. 56.10@56.60; May flat 58.35; July flat 58.60; Oct. 50.75@51.40; Dec. 49.75@50.40. Sales: 2,500 tons.

NEW YORK CRUDE SOYBEAN OIL FUTURES CLOSINGS JAN. 31*
Feb., 11.05b; Mar., 10.95b; April, 10.70b; June, 10.65b; July, 10.43b; Aug., 10.25b; Sept., 10.17b; Oct., 9.90b; Nov., 9.80b; Dec., 9.95b; Jan. 9.85n. Sales: 1 contract.
b-Bid. n-Nominal.
* Reported by Chicago Journal of Commerce.

● TOTAL STOCKS. U. S. Department of Agriculture reported record stocks in all positions of 180,106,000 bushels of soybeans on Jan. 1.

Total includes: on farms 61,908,000 bu., interior mills, elevators and warehouses 35,117,000 bu.; processing plants 66,948,000 bu.; terminals 16,133,000 bu.

Observers are inclined to question the totals, however, since they indicate a total 1949 soybean crop of 245 million bu., instead of the 222 million bushels estimated by the government Dec. 19.

The following figures are from official estimates:

Soybeans on hand Jan. 1	181,060,000 bu.
New crop crushed Sept. 1-Oct. 1	4,000,000
Crushed Oct. 1-Jan. 1	51,949,000
Exports before Jan. 1	4,000,000
Disappearance on farms	4,000,000
	245,009,000

● FARM STOCKS. Stocks of soybeans on farms Jan. 1, totaled 61.9 million bushels, compared with 75.5 million bushels a year earlier, reports the U. S. Department of Agriculture crop reporting board. The current January 1 stocks, with the exception of last year, are the largest since 1943, a year when the soybean harvest was seriously delayed by adverse weather. The 1943-48 average of January 1 farm stocks is 53.2 million bushels.

A large percentage of the farm stocks of soybeans, as usual, is concentrated in the heavy producing North Central States. That area alone accounts for over 56 million bushels still on farms. Illinois, with 21 million bushels, has the heaviest stocks, followed by Iowa with 11 million, and Indiana with 10 million bushels on hand.

Disappearance from farms for the October-December quarter was rapid, amounting to 163 million bushels. This compares with 149 million bushels for the like quarter a year ago, when total supplies were nearly the same as this season. The disappearance during the past quarter was the second highest of record. It has been exceeded only by the disappearance of 169 million bushels in October-December 1947.

STOCKS OF SOYBEANS ON FARMS JAN. 1

State	Average 1943-48	1949	1950	State	Average 1943-48	1949	1950
	Thousand bushels				Thousand bushels		
N. Y.	143	52	58	Del.	273	225	230
N. J.	146	56	71	Md.	277	287	228
Pa.	234	141	147	Va.	595	962	800
Ohio	6,695	6,515	5,972	W. Va.	8	6	5
Ind	7,772	10,913	9,618	N. C.	1,451	2,317	1,465
Ill.	16,464	27,369	21,477	S. C.	61	115	187
Mich.	982	626	871	Ga.	44	56	87
Wis.	352	119	161	Ky.	370	690	749
Minn.	1,994	4,840	4,591	Tenn.	226	228	171
Iowa	10,333	13,724	10,648	Ala.	156	110	104
Mo.	2,325	3,180	1,980	Miss.	342	1,604	502
N. Dak.	28	53	69	Ark.	590	463	524
S. Dak.	112	246	158	La.	208	74	112
Nebr.	180	264	218	Okla.	30	19	21
Kans.	574	250	584	U. S.	53,184	75,504	61,908

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● OIL MILL PRODUCTS. Reported by Bureau of Census, Department of Commerce.

SOYBEANS: RECEIPTS, CRUSHINGS AND STOCKS AT OIL MILLS, BY STATES, NOVEMBER 1949—OCTOBER 1949
(Tons of 2,000 pounds)

State	Receipts at mills		Crushed or used		Stocks at mills	
	Nov. 1949	Oct. 1949	Nov. 1949	Oct. 1949	Nov. 30, 1949	Oct. 31, 1949
U. S.	734,140	†2,114,921	514,155	525,660	2,127,414	†1,907,429
Arkansas	43,521	†42,668	7,560	6,997	77,899	†41,938
Illinois	217,868	779,789	191,936	201,034	777,917	751,985
Indiana	52,453	215,721	40,643	43,672	206,771	194,961
Iowa	98,978	†361,013	97,600	92,857	316,010	†314,632
Kansas	23,576	28,596	15,068	15,909	27,831	19,323
Kentucky	24,634	77,753	19,565	18,393	70,332	65,263
Minnesota	16,705	39,442	17,421	28,489	19,998	20,714
Missouri	39,836	92,511	22,617	22,802	115,787	98,568
Nebraska	8,100	(*)	4,960	5,092	20,157	17,017
N. Carolina	41,846	(*)	5,925	893	44,535	8,614
Ohio	88,870	332,443	63,010	60,776	304,966	279,106
Oklahoma	.....	(*)	(*)	(*)	.....	(*)
Texas						
All other	77,753	144,991	27,850	28,746	145,211	95,308

† Revised.
* Included in "All other" to avoid disclosure of individual operations.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, NOVEMBER 1949—OCTOBER 1949

State	Crude oil (thousand pounds)				Cake and meal (tons)			
	Production		Stocks		Production		Stocks	
	Nov. 1949	Oct. 1949	Nov. 30, 1949	Oct. 31, 1949	Nov. 1949	Oct. 1949	Nov. 30, 1949	Oct. 31, 1949
U. S.	165,473	172,491	25,881	29,840	406,444	414,499	42,490	35,892
Arkansas	2,251	2,078	352	561	6,097	5,556	1,066	1,382
Illinois	63,628	67,814	6,231	8,309	144,460	150,566	10,095	9,256
Indiana	12,964	13,999	1,992	2,202	32,461	34,814	1,849	1,415
Iowa	31,052	30,299	5,655	5,495	80,388	76,017	5,419	5,867
Kansas	4,900	5,246	756	1,237	12,541	13,169	2,941	1,896
Kentucky	6,498	6,270	689	860	15,605	14,536	518	826
Minnesota	5,620	8,944	1,981	1,840	14,514	23,423	3,951	3,719
Missouri	6,871	6,926	1,472	1,124	18,419	18,872	1,614	2,011
Nebraska	1,520	1,579	406	577	4,164	4,310	(*)	(*)
N. Carolina	1,535	244	421	584	4,608	711	3,127	426
Ohio	20,332	20,194	3,943	4,270	50,607	49,194	2,619	2,597
Oklahoma	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Texas								
All other	8,302	8,898	1,983	2,871	22,580	23,331	9,290	6,497

* Included in "All other" to avoid disclosure of individual operations.

PRIMARY PRODUCTS EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS AND STOCKS, NOVEMBER 1949—OCTOBER 1949

Products	Production		Shipments and transfers		End of month stocks	
	Nov. 1949	Oct. 1949	Nov. 1949	Oct. 1949	Nov. 30, 1949	Oct. 31, 1949
SOYBEAN:						
Cake and meal†	406,444	414,499	399,846	391,924	42,490	35,892
Lecithin‡	1,123,679	1,053,216	1,038,263	1,071,440	907,821	822,405
Edible soy flour, full fat†	411	(*)	(*)	(*)	119	(*)
Edible soy flour, other†	7,481	7,685	6,703	7,441	2,133	1,355
Industrial soy flour†	(*)	(*)	(*)	(*)	(*)	(*)

† Unit of measure in tons.
‡ Unit of measure in pounds.
* Not shown to avoid disclosure of individual operations.

● FACTORY USE SOYBEAN OIL.

Factory consumption of crude soybean oil during November totaled 145,477,000 lbs. Of this amount 139,494,000 lbs. was used in refining; 284,000 lbs. in fat splitting; 20,000 lbs. in sulphonation; and 3,389,000 lbs. in other processing.

Total consumption of refined soybean oil in November was 129,801,000 lbs. Total processed other than refining: hydrogenation 35,240,000 lbs.; sulphonation 42,000 lbs.; deodorizing 7,210,000 lbs.

Inedible uses of crude soybean oil in November: soap 92,000 lbs.; paint and varnish 228,000 lbs.; lubricants and greases 14,000 lbs.; other 1,268,000 lbs.

Edible uses of refined soybean oil in November: shortening 51,145,000 lbs.; margarine 2,487,000 lbs.; other 5,502,000 lbs. Inedible uses: chemicals 1,105,000 lbs.; paint and varnish 7,250,000 lbs.; lubricants and greases 9,000 lbs.; linoleum and oilcloth 2,665,000 lbs.; other 9,587,000 lbs.

● **INSPECTIONS.** Inspected receipts of soybeans in December decreased seasonally to a total of 5,628 cars compared with 12,432 cars in November and 44,153 cars in October, according to reports to the Department of Agriculture. December inspections brought the total for the first three months of the season to 62,213 cars compared with 57,967 cars for the same period in 1948. The average for the month of December for the crop years 1943-47 was 5,345 cars.

The quality of the soybeans inspected in December was somewhat better than for the preceding month, 68 percent grading No. 2 or better compared with 57 percent in November.

Inspections of soybeans in December included the equivalent of 586 cars inspected as cargo lots and truck receipts equal to about 230 cars.

● **UNDER PRICE SUPPORT.** A total of 5,151,034 bushels of soybeans had been placed under Commodity Credit Corporation price support by the end of November, U.S.D.A. has announced.

Soybeans placed under price support during the July-November period totaled as follows: Loans, farm stored 1,327,972 bushels; loans, warehouse stored 3,484,906 bushels; purchase agreements 338,156 bushels.

Total soybeans under government support by Dec. 31 was 8,806,477 bushels. Soybeans under loan and stored on farms totaled 3,202,559 bushels; warehouse-stored 4,629,781 bushels; under purchase agreements 974,137 bushels.

● **SHORTENING SHIPMENTS.** Reported by Institute of Shortening and Edible Oils, Inc., in pounds.

Week ending Dec. 31	3,855,536
Week ending Jan. 7	4,635,309
Week ending Jan. 14	6,707,835
Week ending Jan. 21	6,495,905

Grand total of standard shortening shipments for 1949 was 287,210,000 lbs., as reported to the Institute. This compares with 263,829,000 lbs. for 1948; 311,925,000 lbs. for 1947; and 388,749,000 lbs. for 1946.

Total shortening shipments by quarter for 1949 were: first, 63,191,000 lbs.; second, 69,677,000 lbs.; third, 87,574,000 lbs.; and fourth 66,768,000 lbs.

● **SOYBEAN GLUE.** Consumption of soybean glue by the softwood plywood industry in November was 3,047,000 lbs. compared with 3,130,000 lbs. in October; and 2,905,000 lbs. in Nov. 1948, reports Bureau of the Census.

Consumption of phenolic resin glue in November was 2,836,000 lbs. Total consumption of all glues in November was 6,831,000 lbs. compared with 6,714,000 lbs. in October and 6,609,000 lbs. in Nov. 1948.

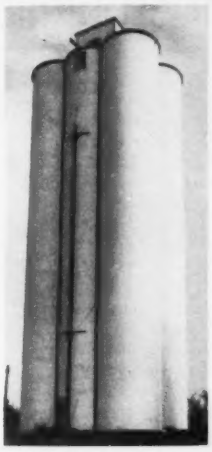
Stocks of soybean glue Nov. 30 totaled 1,606,000 lbs.; Oct. 31, 1,523,000 lbs.; Nov. 30, 1948, 1,865,000 lbs.

● **SOYBEAN STOCKS.** Production and Marketing Administration's commercial grain stock reports for January.

	Jan. 3	Jan. 10	Jan. 17	Jan. 24	Jan. 31
Atlantic Coast	1,444	1,312	1,150	1,134	1,145
Gulf Coast	722	747	619	614	804
Northwestern and Upper Lake	1,056	877	1,011	960	936
Lower Lake	6,921	6,654	6,562	6,152	5,703
East Central	2,953	2,923	2,772	2,737	2,594
West Central Southwestern & Western	3,035	2,961	2,770	5,667	2,594
Total current week	16,131	15,474	14,884	17,264	13,776
Total Year ago	14,804	14,873	14,321	13,182	12,243

● **SEED IMPORTS.** No soybean seed was imported into the U. S. from abroad under the federal seed act during the period July 1-Dec. 31, reports U. S. Department of Agriculture.

This compares with 72,600 lbs. during the same period last year.



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CERTIFIED SEED: THE PROBLEM OF ALL

TO THE EDITOR:

We are vitally interested in production problems involving certified soybean seed. We refer to the difficulty in maintaining varietal purity, and in avoiding mechanical damage and injuring germination. This is the third successive season that we ourselves have encountered this problem.

Last spring, we tried to take every precaution to obtain better results. We selected the purest lot of Manchu Wis. 606 Soybeans for foundation seed, and had the sample approved in advance of planting by the Minnesota Crop Improvement Association. We very carefully selected the very best, most conscientious contract growers. We obtained detailed information from Dr. C. R. Weber of Ames, Iowa, on how to avoid mechanical injury. Detailed, written instructions were supplied each grower on all phases of production to maintain varietal purity and avoid mechanical damage. Despite this effort, our soybean production did not meet the requirements for either purity or germination.

Last year the Soybean Digest carried information that a fair percentage of Iowa's certified Hawkeye acreage would not qualify for certification due to mechanical damage and low germination. This year the Minnesota Crop Improvement Association reports that a large percentage of the soybeans grown for certification will not meet the requirements because of low germination and varietal impurities.

We believe that the soybean is an important crop. A new soybean processing plant is being constructed in this city. At present production levels, approximately 850,000 bushels of soybean seed are necessary to plant Minnesota's acreage, and 1,500,000 bushels to plant Iowa's acreage.

We hope that we are not out of line in suggesting that some effort should be made toward the solution of this problem. As new varieties are developed and released for commercial production, it would seem advisable to know how to handle these varieties to meet purity and germination standards for certification. It would seem to us that all segments of the soybean industry should be interested in this problem. *—R. N. Bieter, Ramy Seed Co., Mankato, Minn.*

LETTERS

More on Dirty Beans

TO THE EDITOR:

We have read with much interest, "We can lose European markets" and, "It's time to clean house," articles that appeared in the October and November volume of the Soybean Digest, in which you stressed the point that no soybeans should leave the farmers' hand containing high percentages of weed seeds, especially poisonous seeds, etc.

On the 22nd of August last, we gave you a full account of the presence of poisonous seeds in soybean parcels shipped during this year to Germany and Holland, and we now would claim your special attention for the foreign materials found in all these shipments such as weed seeds, weed stems, chaff, straw, sand, dirt a.s.o. besides oleaginous seeds (other than soybeans) and grains. As said above already, all this admixture was present in the parcels of soybeans which arrived during this year and as an example we give you below the approximate percentages found by our laboratory in the samples of about 3,040 tons No. 2 yellow soybeans.

The Grain Inspection Certificate, issued by The New Orleans Board Trade Ltd., on the 20th of October 1949, gives the following details:

Test weight 55.0; moisture 13.0 percent; splits 15.0 percent; foreign material 2.6 percent; total damage 0.1 percent.

The shipment arrived in Rotterdam Nov. 8 and the soybeans were sampled, as is customary, in lots of maximum 500 tons, i.e.:

		Foreign Material
Lot No. 1	500,000 kilos	10.9%
Lot No. 2	500,000 kilos	10.1%
Lot No. 3	500,000 kilos	11.8%
Lot No. 4	500,000 kilos	7.1%
Lot No. 5	500,000 kilos	6.8%
Lot No. 6	500,000 kilos	3.0%
Lot. No. 7	40,550 kilos	5.0%

For your information we might still say that these figures of our laboratory are favorable as compared to those of the official laboratory of the Comite van Graanhandelaren (Committee of Grain Merchants), Rotterdam.

We should appreciate very much if you would be so kind to give your special attention to the particulars set forth above.—*W. van Blerkom, Unilever Grondstoffen Maatschappij N. V., Rotterdam.*

See letters published on the subject on this page of the January issue.—Editor.

Fair Question

TO THE EDITOR:

On page ten of the current issue Soybean Digest I read with a great deal of interest the 61.8-bushel-per-acre record yield of soybeans by George Shell, Madison County, Ind.

In reading the article I notice the phenomenal results are accounted for by excellent farming methods and superior soil fertility practices along with the use of Lincoln variety beans. That he plowed down manure and then used 200 pounds of 0-12-12 fertilizer in the row. That he drilled about three pecks of seed per acre in rows averaging 37 inches after very thorough seed bed preparation. That he cultipacked the early growing crop two times and followed with three cultivations.

But . . . DID HE INOCULATE THE SEED?

It irks me to read article after article concerning soybean cultural practices and to observe that very rarely does any writer, grower or editor comment on inoculator.—*L. T. Parr, Albert Dickinson Co., Chicago, Ill.*

Moisture Premiums

TO THE EDITOR:

We are country shippers of soybeans in carload lots. Some of our growers have asked us why we deduct for moisture over 14 percent, but do not pay a premium on beans with moisture under fourteen percent.

At the present time, where we sell the beans, they do not pay a premium for low moisture beans; therefore, we cannot.

The question I would like answered is: Does your association favor the payment of a premium on beans under 14 percent moisture? If not, why?

Any information you can give me would be greatly appreciated.—*H. T. Fallon, general manager Farmers Cooperative Association, Trenton, N. J.*

The Association has never taken an official stand on moisture premiums.—Editor.

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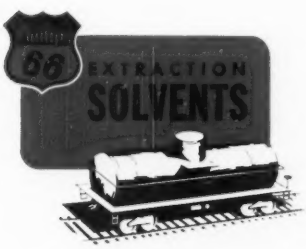

Typical Boiling Ranges

Normal Hexane	151-156 F
Methylpentanes	139-145 F
Normal Heptane . . .	203-209 F

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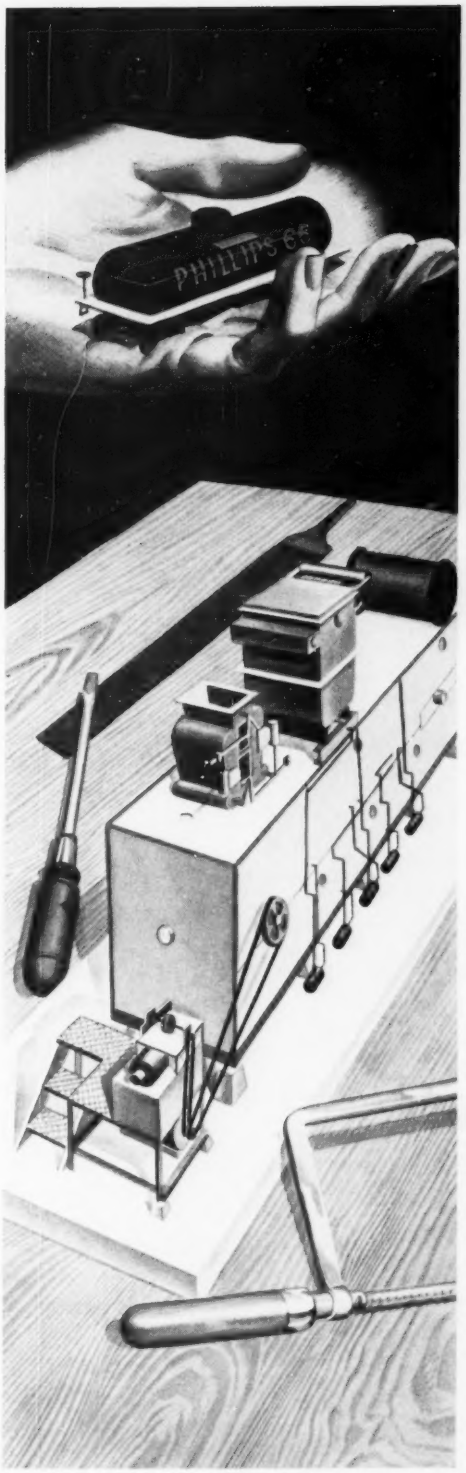

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C

FIRE STRUCK HARD

AT THIS FEED AND GRAIN PRODUCTS COMPANY

Early Sunday morning, October 17, 1948, fire struck the plant of Schafer Feed and Grain Products, Galesburg, Ill. It is believed that the blaze started at the top of the elevator shaft, spreading rapidly to consume everything except the Butler Bolted Steel Grain Tanks and the grain stored in them. Here are shown actual news photographs taken at the time of the disastrous fire.

A RAGING INFERNO. The main plant is blacked out by dense smoke as firemen battle the flames. A Butler Bolted Steel Grain Tank (upper left) protects the stored grain.

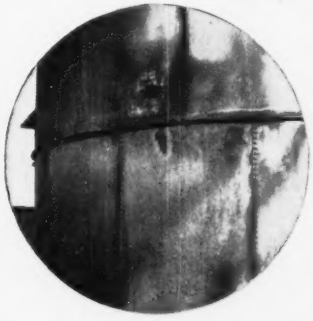
TOTAL DESTRUCTION OF WOOD STRUCTURES. Blackened shells of main plant testify to the destructiveness of the fire which was so intense that telephone poles at some distance from main conflagration were set afire (upper right). At the height of the fire, Butler Tanks were almost completely enveloped by the flames.

. . . but Couldn't Get To The Stored Grain

AFTERMATH OF FIRE is shown in photograph at left. Butler Grain Tanks stand virtually unscathed amid ruins of plant. Nearly all the grain stored in these tanks was still marketable in spite of intense heat and flood of water which was constantly directed at tanks during fire.

CLOSE-UP (right) of Butler Bolted Steel Grain Tank reveals only minor damage to tanks in fire which completely destroyed all other structures.

PROTECT Your Grain in fire-safe Butler Bolted Steel Grain Tanks. Mail coupon today for complete information.



BUTLER MANUFACTURING COMPANY

Kansas City, Mo. Galesburg, Ill. Richmond, Calif. Minneapolis, Minn.

Address all inquiries to:

7461 E. 13th St., Kansas City 3, Mo.
1961 6th Ave., S.E., Minneapolis 14, Minn.
Dept. U U Shipyard #2, P.O. Box 1072, Richmond, Calif.

Send complete information on Butler Bolted Steel Grain Tanks.

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ADDRESS_____

CITY_____ ZONE_____ STATE_____